Program Review Report

Elgin Community College
District 509
Elgin, IL 60123

August 2019

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Program Review Cover Page	
College	Elgin Community College
District Number	509
Contact Person (name, title, contact information)	Peggy Heinrich, Vice President, Teaching, Learning and Student Development; 847-214-7635; pheinrich@elgin.edu
Fiscal Year Reviewed:	2019

Directory of Reviews Submitted

Career & Technical Education				
COLLEGE NAME:	Elgin Community College			
FISCAL YEAR IN REVIEW:	FY2019			
PROGRAM IDENTIFICATION INFORMATION				
PROGRAM TITLE	*DEGREE OR CERT*	*TOTAL CREDIT HOURS*	*6-DIGIT CIP CODE*	*LIST ALL CERTIFICATE PROGRAMS THAT ARE STACKABLE WITHIN THE PARENT DEGREE*
Accounting	**AAS**	**60**	**52.0302**	VS Bookkeeping
Address all fields in the template. If there are certificates and/or other stackable credentials within the program, please be sure to specify and sufficiently address all questions regarding each stackable credential.				
Program Objectives What are the overarching objectives/goals of the program?	The program provides students with the foundational skills needed for employment as well as future accounting classes upon transfer. Upon completion of an AAS degree in Accounting, students will be able to: • Identify and record business transactions applying GAAP rules and principles thru the entire accounting cycle • Prepare basic financial statements (Income Statement, Balance Sheet, and Statement of Equity) • Identify basic Internal Control principles and demonstrate ability to recognize weakness in the application • Prepare and calculate accounting schedules • Evaluate the business results by analyzing the financial statements and schedules. • Compare, contrast, and interpret the financial results calculated under various accounting methods. • Predict financial results for multiple identified alternatives. • Use technology to manipulate and summarize information available for use in business decisions.			
To what extent are these objectives being achieved?	The accounting program provides a well-balanced program for both accounting degree students and transfer bound students. Those students seeking degrees are prepared for the job market after taking fundamental accounting classes as well as income tax, payroll, QuickBooks and Microsoft Excel. Students planning to transfer to a 4 year institution are			

	prepared for further study after completing fundamental accounting classes and required core business classes. Additionally, data has been received from the 4 year universities indicating that ECC students are prepared and performing well at the next academic level. The Associate of Applied Science in Accounting aligns with several local universities into their general business program (EIU and WIU). There is not much demand to articulate the AAS degree. However, should a student choose this option at a later date, almost 75% of the courses are transferable. Many of the students in the accounting courses have selected the Associate of Arts or Associate of Science degree options as their plans include transferring upon graduation. This group of students represents the majority of the students enrolled in Financial Accounting and Managerial Accounting.
Past Program Review Action What action was reported last time the program was reviewed?	**Complete revisions to courses and degree/ certificate curriculum.** Progress reported: The Associate of Applied Science in Accounting and the Bookkeeping Certificate have been through a number of revisions since 2014. All course changes and degree offering changes identified in program review have been completed. The Certificate now has 29 out of 31 credits that stack directly to the Associate of Applied Science depending on student choice. The Associate of Applied Science has decreased from 64 to 60/61 credits, with additional options offered for increased transferability. Effective Fall 2019, the certificate will have 31 out of 31 credits that stack directly to the Associate of Applied Science. **Change degree requirements to potentially increase percentage of required courses that can transfer to a 4-year school.** Progress reported: With the updates made after the 2014 program review, the Bookkeeping certificate aligns more directly with the Associate of Applied Science in Accounting. This Applied Science degree now contains 44 out of 60 credits that are identified as 1.1 transfer and/or IAI classes. Depending on student choice, seventy-

	three percent of the classes would meet transfer requirements. The degree as listed in the 2013-2014 catalog contained 29 out of 64 credits identified as 1.1 and/or IAI classes. This would result in a maximum forty-five percent meeting transfer requirements. **Explore ideas to introduce the diversity/global awareness general education outcome within ACC courses.** Progress reported: Students are exposed to international accounting business opportunities during ACC-240 as part of the section on possible jobs. Former students of all diverse backgrounds who are now enrolled in a 4 year institution are invited back to the classroom to share their experiences. Various international accounting differences are addressed in ACC-200 to expose students to different methodologies used globally. **Identify ways to formalize and be more proactive in working with the local business community.** Progress reported: In the past several years, the accounting advisory team has grown to include additional business community members. There now are representatives from Mueller CPA firm, Sikich CPA firm and the Northern Illinois Food Bank. These new individuals join a partner from Joyce and Associates, the Assistant Chair for the Department of Accountancy at NIU, and several ECC graduates now working in the industry. The community connection will continue to be strengthened. **Strengthen partnership with college's new Internship Coordinator.** Progress reported: Numerous interactions have occurred with the Internship department. In March 2015, the accounting group was represented at the first Career Exploration Expo. While the results were not as hoped, a connection was made to Mueller CPA firm, who would later send a representative to the accounting advisory team. Continuing interaction exists between faculty and the internship group as both have evolved to meet the needs of the college and the students.

	Assist in the development of an accounting seminar as part of the fall *Career Conversations* series, sponsored by the office of Career Development Services. Progress reported: On November 8, 2017, the accounting faculty and career development group hosted a Career Conversation in Accounting event. Panelists included a partner from Sikich CPA firm, the Accounting Services Manager at Mueller CPA firm, several members of the NIU Department of Accountancy, and a member of the Illinois Board of Examiners. Students had an opportunity to interact with these individuals personally and internship opportunities were presented. This event will continue to evolve as needed to meet the needs of the department and students. **Begin annual course-level assessment as outlined on the newly created five-year plan.** Progress reported: The course outline for ACC-210 was updated to online software version to keep up with changes in the industry. Assessment will be planned for SP18 or FA18 to track impact of new changes. An external certification was also added to the course, some additional materials may be needed beyond current textbook as the pass rate on the external certification was 50%. All courses that had enrollment during this 5 year period have been assessed once. Financial Accounting ACC-200 and Managerial Accounting ACC-240 have been assessed more than two times during this same period. This process will remain in place. **Investigate possibility of hybrid formats for ACC-101/105/106** Progress reported: No need has been identified for hybrid at this time. **Explore creation of business applications course (Excel or Access) to address advisory committee feedback regarding applicant technology skills.** Progress reported: After confirming with the Accounting Advisory Committee, the ACC-203 and ACC-205 Excel classes have been removed from the certificate and degree offerings. These classes have been replaced with a revamped Excel course

	CIS-242 offered through the Digital Technologies program. This Spreadsheet/Excel class provides students with content and practice to sit for a Microsoft Excel certification exam monitored through Certiport. This completed certificate can be added to a resume as an industry recognized credential. **Monitor number of certificate and degree completions after introducing new curriculum, with goal of 15% increase for the next review period.** Progress reported: The accounting student earning the AAS or VS is typically not completing the program within 2 years or less. Many have a much longer educational pathway. In 2013, the completions for the two offerings combined was 11. In 2017 and 2018, the completions for the two offerings were 12 and 14 respectively. **Continue to work to attract qualified adjunct candidates to teach managerial and/or cost accounting.** Progress reported: A current ECC employee from the Finance department was added as an instructor. There are three other adjuncts that teach one class a semester as enrollment allows. This goal will continue as courses are reviewed for need beyond the three core courses and the CTE-based courses. An additional adjunct was added during summer 2018 to teach Financial Accounting. The program is staffed by a strong and well-qualified group to meet the needs of the department. At this time, the staffing requirements are met. **Partner with Institutional Research for student goal survey and other custom research/data requests (through AY19/20).** Progress reported: This goal will continue. As changes are made to the registration and enrollment process, it would be helpful to receive some reporting on the number of students with Accounting as their intended major either AA/AS or AAS/Certificate. Currently, only completion data is available for CTE awards.

	Explore development of Learning Community with Economics department. Progress reported: Economics is part of the Social Science requirement for many degrees and has expanded greatly through the Accelerate College program. This would not be a good fit for alignment with just accounting students. There is no additional plan to explore learning communities further. **Additional accomplishments since FY14 (not specified in FY14 program review):** • The CPA exam qualification process has changed during the past few years, and more students are in need of ACC or BUS classes to meet the education requirements. The Illinois Board of Examiners (ILBOE.org) offers a website where students can determine the classes available at a given institution. In October 2015, the template was submitted and approved for classes offered at ECC that meet these requirements. Having this template on the ILBOE website will allow students to identify and enroll in classes at ECC needed to pursue the CPA credential. • The Income Tax Accounting ACC-225 class was transitioned to an online modality in Fall 2017. The goal of this transition was to provide another accounting class as an online option for students. • With industry changing to a more cloud-based environment, the QuickBooks class was reorganized and offered as QuickBooks Online. The updated class uses cloud-based software rather than desktop software and incorporates more use of Excel applications with downloaded business information. • In March 2017, the SBCT division (Dean and one accounting faculty member) hosted the Streamwood high school DECA group on campus for a one day spring break event. The event showcased the accounting and business offerings at the college and included several interactive projects. Students were asked to use the business skills acquired during high school to sell an unusual patented object for one of the projects.

	• Students in Managerial Accounting ACC-240 had an opportunity to attend PWC's case competition held on the NIU campus in Fall 2017. Students were presented with real-world business scenarios focused on strategic issues faced by companies around the world. Students needed to develop a solution and create a presentation outlining this solution. The ECC student teams were able to develop a well-thought out solution supported by real world data. Students were invited again for Fall 2018 and one team participated in the event. • In November 2017, ECC accounting students were able to attend the Summer Leadership Fair at NIU for the first time. This event allowed the accounting students access to mini-internships, leadership experiences, and job shadowing opportunities for the first time along with NIU College of Business students. Students were invited again for the Fall 2018 event. • In 2016, BUS120, Business Math, was assessed to determine if a minimum math prerequisite should be added to the class. The results indicated that the students were not achieving the higher level business outcomes due to lacking basic math skills. Effective Fall 2017, a minimum math prerequisite of MTH-090 was added to the class.

CTE PROGRAM REVIEW ANALYSIS Complete the following fields and provide concise information where applicable. Please do not insert full data sets but summarize the data to completely answer the questions. Concise tables displaying this data may be attached. The review will be sent back if any of the below fields are left empty or inadequate information is provided.	
List all pre-requisites for this program (courses, placement scores, etc.).	The accounting program does not have admission pre-requisites. For some courses, students must meet minimum competency skills in math, reading or English.
Please list or attach all required courses (including titles) for completion of this program including institution required courses (e.g. student success, first year, general education requirements, etc.).	This program's current catalog information can be accessed at www.elgin.edu/accounting.

Provide a rational for content/credit hours beyond 30 hours for a certificate or 60 hours for a degree.	The certificate runs 1 to 2 credits higher and the degree can be 1 credit higher depending on the Math or electives chosen by the student, as some are 4 credits instead of 3.
INDICATOR 1: NEED	***RESPONSE***
1.1 What is the labor market demand for the program?	Employment at the two year level (students earning either the Associate of Applied Science in Accounting or Bookkeeping certificate) is focused on accounting support services and entry-level clerical positions. Students need both accounting skills and technical application skills like QuickBooks and Microsoft Excel. There are several SOC codes available, but primarily 43-3031 (Bookkeeping, Accounting and Auditing clerks) and 43-xxxx (Financial clerks). Jobs in these sectors can expect to see a median income of $41,000/year ($19.83/hr), slightly higher than the national average. The courses included in the program contribute to an Associate of Arts and Associate of Science for students transferring to business programs at 4 year institutions. Demand for accountants, at every level of the organization, continues to grow. Accountants are required to not only understand the financial results, but perform assessments and make suggestions to the business team/clients/managers. The need for communication, critical thinking, problem solving, and technology skills continues to grow in the occupation. To meet this demand, transfer level students take core business classes and are advised to include Microsoft Excel in their schedule. Students pursuing bachelor's degrees in Accounting also become auditors, analysts and personal finance advisors.
1.2 How has demand changed in the past five years and what is the outlook for the next five years?	For those students earning the AAS Accounting degree, per the EMSI data, modest growth is expected at 2.2% through 2023, slightly below the national average of 4.0%. Some specific occupations within the group are higher, such as Billing/Posting Clerks (7.5%) and Statistical Assistants (5.6%).
1.3 What labor market information sources are utilized?	The college uses tools such as EMSI, BLS, IDES, and ONet as well as research undertaken by the department.

1.4 How does the institution/program ensure that there is a sufficient pipeline or enrollment of students to fulfill the labor market need? (i.e. how/where are students recruited for this program?)	Prospective new students are made aware of the business/accounting program at ECC through interaction with the D509 school districts. The department also has representation at ECC events aimed at high school students exploring career and college opportunities. Students can enter the program from many of the D509 high schools either as a traditional student or a dual credit student. Ongoing interaction with advisors and other faculty in the business programs can inform career-exploring and undecided students. Returning adult students are also part of the program as the department is viewed as a successful option for CPA classes, updated education, and training for displaced workers. An online listing at Illinois Board of Examiners website reaches current practitioners needing additional skills.
1.5 Did the review of program need result in actions or modifications? Please explain.	The program contains a well-balanced mix of classes to continue to meet the local demand. A possible expansion into the CPA preparation area has already been identified for investigation. The advisory committee annual meeting is scheduled for May 2019. The members will be asked for any expansion ideas or possible credentialing needs as part of this meeting. As with any career program, faculty will continue to review the curriculum for any new offerings that would benefit students or employers in the community. Possible classes include accounting research, data analytics or a business/computer science crossover class. This process will require further analysis and continued conversations with the advisory committee as well as 4-year university partners. Employment data for the region and job skills required will be reviewed to maintain alignment between the market place and the classroom. This will be an ongoing project for the next five year review period.
INDICATOR 2: COST EFFECTIVENESS	***RESPONSE***
2.1 How does the institution assess cost-effectiveness for CTE programming? Consider:	Beyond the cost of faculty (currently 2 full-time with several adjuncts), expenses are minimal, cost efficient and comparable to other programs of similar size and

• What are the costs to the institution associated with this program? • How do costs compare to other similar programs on campus? • How is the college paying for this program and its costs (e.g. grants, etc.)?	scope. Other primary budget lines include printing and conferences/travel. The budgeted cost of computer software is matched to a course fee received from the student for a net zero cost to the college. Costs for this program are consistently paid through the Education fund.
2.2 If most of the costs are offset by grant funding, is there a sustainability plan in place in the absence of an outside funding source? Please explain.	N/A
2.3 What are ways that the college will be increasing the cost-effectiveness of this program?	Costs for the program are minimal and cost efficient.
2.4 Did the review of program cost result in any actions or modifications? Please explain.	As curriculum review continues there will be a need to add faculty if new courses are created. In addition, course development fees could be needed for new courses or online/hybrid development. Because of increases in dual credit offerings, there will be a need to hire more adjunct faculty to handle additional sections to accommodate increased enrollment.
INDICATOR 3: QUALITY	***RESPONSE***
3.1 What are the program's strengths?	Current strength is derived from the recent curriculum changes which have streamlined the curriculum for the career-seeking student, while also promoting the program for business-oriented transfer students. In 2015 the program received an award of recognition for Curriculum Re-design as well as finalist recognitions for Outstanding Course Assessment in BUS-120, Fall 2015 & ACC-240, Fall 2016. Faculty are dedicated to their students, their profession, and using research, data and partners to make the program better.
3.2 What are the identified or potential weaknesses of the program?	At this time, the program is positioned well to meet the needs of its students. Courses will continue to be monitored and evaluated as to how they meet the needs of the industry and faculty will continue to seek the advice of the advisory committee.

3.3 What are the delivery methods of this program? (e.g. traditional format/online/hybrid/team-teaching etc.)? How does the program compare success rates of each delivery system?	Most of the courses are offered in a 16 week semester (Fall & Spring) which best suits the material. The three largest courses have day, night, and online options available for students. The smaller enrollment courses have one section offered a semester. For these, the scheduling is alternated between fall and spring terms to provide the most flexibility for students' schedules. Additionally, the tax course (ACC-225) is offered only online as student demand is low and this provides the greatest flexibility for students. During the summer semester (8 weeks), all 3 courses have an online option available to students over an 8-week term. The transfer courses, ACC-200 and ACC-240, also have daytime sections available in the summer. Enrollment, success and retention data from Institutional Research is disaggregated by modality. Programs are also given college averages for face-to-face, hybrid, and online sections of transfer and career-technical programs for benchmarking. Generally, success rates in online sections are somewhat lower than in face-to-face, but this is not always the case.
3.4 How does this program fit into a career pathway?	Accounting as a profession is embedded in a Business transfer pathway, to move from an AA to a BA/BS. This program and its classes fit into most business programs at 4 year institutions as part of a core set of classes. The Associate of Applied Science degree and the Bookkeeping certificate directly lead to employment as an accounting clerk or financial clerk. For each path, students may begin while in high school.
3.5 What innovations have been implemented or brought to this program that other colleges would want to learn about?	Innovation for accounting is difficult to define as the fundamental principles are rooted in the late 1400's. The core classes still follow those basic generally accepted accounting principles. However, the program has not remained stagnant and has developed and changed based on technology and pedagogy.

	The content and the structure within the classes have changed to become more skill based and focused on application. Once in the workforce, students will be asked to demonstrate the 'theory' learned in the classroom. The classroom needs to provide that place to practice. Students are asked to apply critical thinking and problem solving skills to the content to practice business decision making. Communication is also emphasized as the accounting industry has evolved to become part of the business team rather than 'number crunchers'. Business education standards as well as AICPA standards have been reviewed to maintain alignment within the program.
3.6 Are there dual credit opportunities? If so please list offerings and the associated high schools.	Dual Credit opportunities are in place with the high schools in District 509, but vary from school to school. Articulated credit is possible for Introductory Accounting ACC-100. On-campus opportunities exist for Financial Accounting ACC-200 and Managerial Accounting ACC-240. These two classes are common classes in many 4-year business programs and students can earn credit for these classes as part of dual credit offerings. Enrollment in the dual credit program is historically small (2-6 students per semester). The dual credit offerings are in a review process at this time as part of the overall college review.
3.7 What work-based learning opportunities are available and integrated into the curriculum?	Students enrolled in the Associate of Applied Science Accounting have the opportunity to include an internship as part of their elective credits. ACC-260 runs with variable credit hours ranging from 1-3 depending on the number of work hours in each student's arrangement. Transfer focused students are more likely to include work-based learning/internships at the next level destination program.
3.8 Is industry accreditation required for this program (e.g. nursing)? If so, identify the accrediting body. Please also list if the college has chosen to voluntarily seek accreditation (e.g. automotive technology, NATEF).	Industry accreditation is not required for the program.

3.9 Are industry-recognized credentials offered? If so, please list.	Students may obtain two industry credentials within the program: Microsoft Excel certification CIS-242 and QuickBooks online certification ACC-210. Pass rates for Excel are reported around 70%, but QuickBooks online is at 50%. Steps had been taken to increase the students' preparation for the Quick Books exam without much change in the results. Students are successful in the class, but are missing the credential pass rate by 2-3%. Individual results will be analyzed from the Fall 2018 exams and discussed with the instructor to determine what additional changes are needed.
3.10 Is this an apprenticeship program? If so, please elaborate.	N/A
3.11 If applicable, please list the licensure examination pass rate.	There are no required licensure or certification exams for employment in the accounting area at the two year level.
3.12 What current articulation or cooperative agreements/initiatives are in place for this program?	Articulation from the high schools is under review as part of the overall dual credit review. Only Introductory Accounting ACC-100 is accepted for articulation. The Associate of Applied Science in Accounting aligns with several local universities into their general business program (EIU and WIU). There is not much demand to articulate the AAS degree. If a student should choose to articulate that degree directly, it typically works best with a business administration degree with an accounting minor/emphasis. However, should a student choose this option at a later date, the degree has been structured to provide students the best combination of courses, as almost 75% of them are transferable. Many students taking accounting courses instead opt to pursue Associate of Arts or Associate of Science degree options and transfer upon graduation. This group of students represents the majority of the students enrolled in Financial Accounting and Managerial Accounting.
3.13 Have partnerships been formed since the last review that may increase the quality of the	The accounting department has reached out to the community and increased the local representation on the advisory committee. Members were invited from the Northern Illinois Food Bank and Sikich to broaden

program and its courses? If so, with whom?	the representation. These members bring a different view point to the curriculum discussion. Within ECC, Accounting maintains relationships with the other programs in the business area. For example, courses from the newly established Supply Chain Management program will become electives for Accounting students, providing them a wider view of business operations they will encounter in the workforce.
3.14 What professional development or training is offered to adjunct and full time faculty that may increase the quality of this program?	There are plentiful and various professional development opportunities for faculty at the college. The faculty contract allows for professional development funds, and includes part-time faculty. The college offers in-house training on various subjects. Even in light of recent travel restrictions and other financial constraints, many faculty utilize professional development funds to attend conferences in their discipline. Within Accounting, adjunct faculty will continue to be encouraged to add or maintain credentials relevant to the industry. Faculty are members of the American Institute of Certified Public Accountants (AICPA); Institute of Management Accountants (IMA); Illinois CPA Society (ICPAS); Teachers of Accounting at Two Year Colleges (TACTYC), Illinois Business Education Association (IBEA), Association for College and University Auditors (ACUA); and, National Alliance for Insurance Education & Research.
3.15 What is the status of the current technology and equipment used for this program?	Technology is used in the classrooms in a variety of ways. Instructors use D2L to deliver PowerPoints, assessment results and additional resources to the students. Students are also provided use of discussion boards to interact with their peers. McGraw Hill, the publisher used for ACC-100, ACC-200, and ACC-240, provides software (Connect) that accompanies the E-book. That software contains many learning opportunities for the students from narrated videos to homework assignments based on learning objectives. These resources are accessible from many platforms. In ACC-210, QuickBooks, the class uses cloud based software to deliver the content. The faculty and the advisory committee have embraced the need for technology in the program.

	Instructors are using the textbook-provided software which includes an e-book and e-learning opportunities (videos, narrated PowerPoints, adaptive assignments, Excel exercises, online problems). Students within the degree program are required to complete an Excel class, and transfer students are encouraged to complete an Excel class prior to their transfer. Excel-based exercises have been incorporated into multiple classes to provide practice with those skills. At this time, there are a couple of challenges and opportunities yet to be addressed. The McGraw Hill software, Connect, is not fully integrated with the proctoring software, Respondus Lockdown Browser. This prevents the use of the Lockdown Browser for online sections and proctored exams. This proctoring software is also not efficient based on conversations with past users. The D2L quiz function does not have the capability that the Connect software does for questions, which is needed for the classes so that is not an option.
3.16 What assessment methods are used to ensure student success?	Each course and section contains a number of summative exams. In addition, a student may complete homework, projects or group work that measure formative learning. Use of the formal summative assessment exam provides results across sections of a given course. The faculty have mapped individual assessment questions to specific program outcomes. By reviewing the question results, faculty can determine which content requires clarification in the classroom. The faculty can also review across sections to determine if adaptation is required to meet program outcomes. All courses are assessed throughout the 5 year review process. The core courses ACC-100, ACC-200 and ACC-240 are assessed and reviewed multiple times.
3.17 How satisfied are students with their preparation for employment?	The response to the CT survey was quite low with a total of only 13 participants over the five years. Of those participants, 92% indicated they were either very or somewhat satisfied with job preparation in their courses and major area of study. Lecture and program skills were 100% for very or somewhat satisfied.

3.18 How is student satisfaction information collected?	Despite ICCB rescinding the requirement for the CT Follow-up Survey, the college's Institutional Research department continues to execute this survey protocol one year after certificate or degree completion. In addition, all completers are surveyed *each year*, not just prior to the review, so a full five years of responses can be studied. Accounting faculty also review their own course-end evaluation forms each semester.
3.19 How are employers engaged in this program? (e.g. curriculum design, review, placement, work-based learning opportunities)	The accounting department has reached out to the community and increased the local representation on the advisory committee. Members were invited from the Northern Illinois Food Bank and Sikich to broaden the representation. These members bring a different and valuable viewpoint to the curriculum discussion. Since a majority of our students are planning transfer degrees, employment in the accounting field is not an immediate goal. However work-based learning and community connections are important and of value to these students. The accounting program continues to look for ways to increase local business involvement and support of the program and students. Advisory members have reviewed curriculum plans and influenced changes in the past years. Members of 4-year universities have been working with the department to provide connections to their work-based learning opportunities for students.
3.20 How often does the program advisory committee meet?	The Accounting Advisory Committee meets on an annual basis, usually early in May. Several new members from the business community have joined in the past year which has increased the depth and experience at the table. As the needs of the program change, additional members will be invited at that time if needed.
3.21 How satisfied are employers in the preparation of the program's graduates?	The curriculum is vetted with the advisory committee on an annual basis. They have continued to emphasize the need for technology skills, specifically Excel/spreadsheets. The advisory committee is aware of the complexity of the department both from the class content and the fact that the majority of the students are transfer students. The Assistant Chair of the Accountancy

	department at Northern Illinois University is a member of the committee and has indicated that our students are not only successful at that level, but often surpass native students. At this time, there is no formal measurement of student preparedness once in the job market. This is data that would be of value to the department. Review of the CT survey indicated that 82% of the participants are employed in a field related to their education. Half of the participants began their current job prior to enrolling at ECC which may indicate they needed to increase or document skills for their position. If the student was able to retain the position, this would be evidence that the employer was satisfied with the student's skills.
3.22 How is employer satisfaction information collected?	Like most CTE programs, Accounting strongly relies on employer feedback received during Advisory meetings. Impressions can also be gleaned from the Internship coordinator. If necessary, formal survey feedback can be solicited in cooperation with Institutional Research.
3.23 Did the review of program quality result in any actions or modifications? Please explain.	As mentioned, all of the courses within the program have been recently assessed. Where findings indicated a need, an intervention was put in place. For example, within ACC-100, the introductory course for the program, performance on higher-order skills did not meet expectations. Additional emphasis will be placed on the transaction skill set to improve and deepen students' knowledge to improve the critical thinking required later. ACC-240 is typically the highest level accounting course taken by most students in the program. Overall, students meet expectations for the learning outcomes, though a few of issues were discovered between sections of the course that were addressed through mentoring between full-time and adjunct faculty. A basic math pre-requisite was added to BUS-120 as a means to bolster student learning. The change has been in place for several years and this class will be re-assessed soon to judge the impact on the critical business skills that had been previously missing for some students.

	Unrelated to a specific course, textbook publishers are offering integrated full-access to their e-books and software within the D2L platform which would provide each student access to the material on the first day of class. This access would also allow students to purchase materials at a deeply discounted price using possible scholarship and grant funds as the cost would be a course fee. Having every student ready to go with the content on day one would be a great advantage and potential impact on success rates.

DATA ANALYSIS FOR CTE PROGRAM REVIEW

Please complete for each program reviewed. Colleges may report aggregated data from the parent program or report on enrollment and completion data individually for each certificate within the program. Provide the most recent 5 year longitudinal data available.

CTE PROGRAM	**Accounting**				
CIP CODE	**52.0302**				
	FY2014	*FY2015*	*FY2016*	*FY2017*	*FY2018*
*NUMBER OF STUDENTS ENROLLED (*SU/SR DUPLICATED SEATCOUNT ENROLLMENT for ALL ACC COURSES)*	807	813	677	758	666
COMPLETIONS					
AAS – ACCOUNTING	7	5	9	6	6
VS – BOOKKEEPING	1	2	2	6	8
OTHER (PLEASE IDENTIFY) **OVERALL COURSE SUCCESS (A-C) RATES, excluding withdrawals*	78%	81%	74%	83%	77%
OTHER (PLEASE IDENTIFY)	Program also receives course-level enrollment and success data as part of their Quality review, including breakdowns for dual-credit and section modality.				
How does the data support the program goals? Elaborate.	<u>ENROLLMENT</u> It is anticipated that enrollment will be steady in the next five years. The department overall is maintaining seats and credit hours in line with enrollment trends for the college. Across the 5 year period (2014 – 2018), ECC overall saw a 16.5% decrease in seats and a 10.9% decrease in credit hours. Across the same time period, the accounting department saw a similar decrease in seats of 17.5%, but a smaller decrease in credit hours of only 9.3%. For the department, part of the decrease is due to the discontinuation of ACC-				

	203/ACC-205, which was replaced by a CIS Excel class, and the discontinuation of ACC-212. This resulted in a loss of 39 seats (4.8% loss) and 39 credit hours (1.5% loss) during this time period. This loss was offset in part by the combining of ACC-202/ACC-204 into one class, ACC-210. This combination, now a 3 credit class, resulted in a loss of 20 seats (2.5% decrease) and a gain of 52 credit hours (1.95% increase). Looking at the three largest classes for the 5 year time period, the following was observed: • ACC-100 saw a 28% decrease in seats and credit hours. As more students enter the program having already completed some business classes (via high school or previous post-secondary), they can choose to bypass this class. This class is not a transfer level class, and with 74% of the students pursing AA/AS degrees, the demand is smaller. • ACC-200 saw a 4% decrease in seats and credit hours. This class continues to be in demand, but is impacted by overall enrollment changes. • ACC-240 saw a 4% increase in seats and credit hours. This class continues to be in demand. For the three BUS classes managed by the program, the following was observed over the past five years: • BUS-105 saw a 62% increase in seats and credit hours. This class meets CPA exam requirements which has positively impacted enrollment and is now offered every term, including summer. • BUS-120 decreased by 50% but still runs seven to eight sections per year. As most students enter the program with plans to transfer, this course does not meet the associate degree math requirements. • BUS-140 doubled over the review period, now consistently running 2 sections per year. Statistics as a math requirement is becoming more common in four year programs. With many transfer students in the program, this course has increased demand, particularly with an IAI Major code in business. <u>RETENTION/SUCCESS</u> Retention rates in Accounting courses are slightly lower than the college average – 75% to 80% compared to 88% for ECC. However, the program has a higher proportion of online sections, which tend to have higher withdrawals. In

	addition, both Introductory Accounting and Financial Accounting exceed 25% withdrawals due to the nature of the courses. Two of the classes (ACC-100 or ACC-200) can be exploratory for students trying out the business world. If the student has no background to build on, they may be unprepared for the complexity and rigor of accounting and decide the discipline is not for them. Looking across the five year period, the accounting classes in total had a 62% success rate in 2014 compared to a 58% success rate in 2018 out of all students who enrolled, with individual courses ranging from 45% to 100% in 2018. However, when calculating the success rate by first excluding the withdrawals (as done in the data table above), the 2018 rate was 76%, which compares more favorably to the college overall. The class with the lowest success rate is ACC-100: Introductory Accounting. This class is the first exposure to Accounting for the student which makes the class very difficult. Students may be ill-prepared for the difficulty of the class or have chosen this class to explore business as a major. This difficulty is compounded in the online modality. Classes with the highest level of success are the classes at the end of the student's accounting journey. Students in QuickBooks, Payroll, and Income Tax have taken the core accounting classes and are now finishing the practical application classes for work. They are getting ready to graduate and are motivated to complete the program successfully. <u>COMPLETION/TRANSFER</u> Students who are enrolled in the AAS – Accounting or Bookkeeping certificate programs are completing their programs fairly consistently across the five year review process. In 2014, the total completions were eight awards conferred and in 2018, the total completions was fourteen degrees/certificates. Across the 5 year period, 94 completions were recognized. The certificate is stackable into the AAS degree and students can earn both awards within the program. As discussed, the majority of students enrolled in the department are pursuing the AA or AS transfer degrees and therefore are not tracked as completions for the program. From data compiled by Institutional Research, it was found that nearly 74% of students enrolled in ACC-200 were

	pursuing AA/AS degrees, not the accounting degree or certificate. The top transfer institutions are Northern Illinois University and Illinois State University which set high standards and have indicated our students are succeeding at the next level. Over the review period, 525 AA/AS degree earners had enrolled in one or both of the accounting courses.
What disaggregated data was reviewed?	Institutional Research regularly provides enrollment and success data disaggregated for course modality and for early college credit students, such as tech prep and middle college. Within CTE programs specifically, IR provides statistics for program enrollment and completion disaggregated by gender, age and race/ethnicity. Patterns for Accounting will be addressed below. Programs and related internal planning groups will continue to collaborate with Institutional Research to determine what additional disaggregation can be helpful at the discipline/course level. Dual credit students make up a small percent of the total enrollment in the accounting area and success rates are consistent with the class overall.
Were there gaps in the data? Please explain.	It was interesting to discover that while students were completing the AAS or VS in proportion to the enrollment for White and Latino students, the completers were 88% male for the review period despite being 50% of the enrollment. The program would need to be able to profile the AA/AS degree earners to understand if this represents a true disparity.
What is the college doing to overcome any identifiable gaps?	ECC is a Leader College within Achieving the Dream. Under this membership, the *Student Success Infrastructure* coordinates data analysis and new initiatives from an equity mindset. Many projects will address all students, but others are focused on specific populations. Across the college, faculty are very interested in learning more about existing achievement gaps and discussing strategies to close them. Generally, these discussions consider student support services and college policies, but where needed will veer into the classroom.
Are the students served in this program representative of the total student population? Please explain.	Students enrolled in the program's courses are roughly a 50/50 mix of male and female. There is a slightly higher proportion of White students (48% to 40% in 2018) but the Latino proportion has been increasing over the review period, hitting 34% in 2018. The number of African-

	American students approximates the college average of 4-5%. Nearly two-thirds (64%) of the students are age 22 or younger, which is larger than the college overall, 54% in 2018.
Are the students served in this program representative of the district population? Please explain.	Within District 509, 61% of residents are white and 26% Latino, so in this regard, the program is over-represented with Latino students. The proportion of African – American students in the program approximates the community, which was at 3.7% in 2018.
REVIEW RESULTS	
Action	☒ Continued with Minor Improvements ☐Significantly Modified ☐Placed on Inactive Status ☐Discontinued/Eliminated ☐Other (please specify)
Summary Rationale Please provide a brief rationale for the chosen action.	The Accounting program was reviewed in detail during the prior program review and major changes were identified at that time. Over the course of the past 5 years, those identified changes and many others were made to overhaul the program. At this time, the program is on track and meets the needs of different groups of students, whether they are seeking career opportunities or preparation to transfer into a Bachelor's program. Based on documentation from IR used throughout this review, approximately 74% of the students in the top 2 courses are identified as transfer degree graduates, which was a metric that was elusive for some time. The program hopes that IR can continue to report data on these two different student populations. Given these distinct student groups, it is critical that NIU and local employers are part of the Advisory Committee. They have confirmed to program faculty that Excel and other technology skills are important for both groups and the program should consider how to address those skills as well as emerging ones in statistics, data analysis, problem solving and critical thinking.
Intended Action Steps What are the action steps resulting from this review? Please detail a timeline and/or dates for each step.	<u>Within next year:</u> • Locate, research, and identify steps to increase analytic and decision making skills of students (data analytics), FA19/SP20 • Explore the possibilities of incorporating Lynda.com or other Excel/Access training in ACC-200 Financial

	Accounting and/or ACC-240 Managerial Accounting, FA19/SP20 • Continue course level assessment for all classes, ongoing • Continue involvement in the dual credit discussions to determine impact on the program, ongoing • Update curriculum to include statistics (MTH and BUS) as acceptable math prerequisite for ACC-200 class, FA19/SP20 • Explore possibility of hybrid versions of ACC-221 or ACC-210 – FA19/SP20, pending budget • Work with IR and explore options to gather student data on intended major when transferring and job skills monitoring if terminal degree is earned Spring. 2020 <u>Over next five years:</u> • Encourage student involvement in activities at transfer institutions – Leadership fairs, Club activities, Employer sponsored events, etc. Beginning SP20. • Explore additional resources for QuickBooks Online class to increase student success on certification exam. – Spring or Fall 2020 • Provide and encourage leadership and community service opportunities for the students – ongoing over 5 years as opportunities arise. • Partner with the Strategic Partnership/Experiential Learning department to continue to build the community connection and encourage internships and career development or exploration opportunities - ongoing • Research feasibility of developing an accounting research class – need, available materials, etc., 2021 • Locate labor market data on benefit of Certified Bookkeeper Exam. Does our certificate meet the need and does the credential add to the resume? 2021 • Explore need for Sage software class in the program and possible joint use with Supply Chain Management program. 2021 • Explore reviving Intermediate I and Cost accounting classes to offer in alternate semesters. Explore possibility of online offering and need for additional adjunct faculty. 2022 • Work with adjunct instructors to be sure they have measurable, assessable outcomes for the classes. These outcomes will be tied to the program outcomes and chapter content. 2021 - 2023

	• Review regional marketplace job openings and National Business Education Standards to determine alignment to program and course outcomes and plan to address any gaps. 2021-2023
Resources Needed	• Funds to incorporate a program similar to Lynda.com in Financial Accounting and/or Managerial Accounting; • Possible addition of another adjunct faculty due to increased demand and/or course offerings.
Responsibility Who is responsible for completing or implementing the modifications?	Divisional administration, Instructional Coordinator, and related faculty when available.

Career & Technical Education				
COLLEGE NAME:	Elgin Community College			
FISCAL YEAR IN REVIEW:	FY2019			
PROGRAM IDENTIFICATION INFORMATION				
PROGRAM TITLE	*DEGREE OR CERT*	*TOTAL CREDIT HOURS*	*6-DIGIT CIP CODE*	*LIST ALL CERTIFICATE PROGRAMS THAT ARE STACKABLE WITHIN THE PARENT DEGREE*
Clinical Laboratory Technology	**AAS**	**67**	**51.1004**	BVS Clinical Laboratory Assistant BVS Phlebotomy
Address all fields in the template. If there are certificates and/or other stackable credentials within the program, please be sure to specify and sufficiently address all questions regarding each stackable credential.				
Program Objectives What are the overarching objectives/goals of the program?	Students will demonstrate the technical skills needed to perform laboratory test procedures competently. • Collect and process specimens independently. • Apply test principles in the performance of diagnostic lab analyses. • Correlate test results with clinical disease states. • Evaluate quality control results before reporting test results. • Follow established laboratory safety policies Students will utilize the critical thinking skills needed to solve problems independently. • Organize and prioritize tasks appropriately. • Initiate measures to correct technical problems. • Maintain quality performance under stress. Students will demonstrate the communication skills needed to function effectively in a laboratory environment. • Convey written and verbal information to others in a timely manner. • Follow written and verbal instructions accurately. • Use computer technology to operate equipment and manage information.			

	Students will develop an understanding of their professional role within a healthcare team. • Develop a sense of responsibility to the patient and the employer. • Treat co-workers with respect. • Maintain professionalism in appearance and conduct. • Remain adaptable to changes that occur in the profession. • Grow intellectually through continuing education.
To what extent are these objectives being achieved?	Each student is expected to successfully complete a variety of specific skills in each course, to be sure the student is competent in achieving accurate patient results. If they are not successful the first time, they must repeat the skill until they achieve success. Also, students are evaluated each semester by their instructors focusing on their "soft skills" which are important in working with other professional team members. If the student is "below expectations" in two or more areas, they fail the course. The program is fulfilling its goals of graduating skilled, work-ready technicians. They have been exposed to a variety of work settings, understand how the role of the lab fits into the bigger picture of patient care, work as a team, and commit to lifelong learning.
Past Program Review Action What action was reported last time the program was reviewed?	**Work on adopting simulated Microbiology lab at ECC to balance lack of signed partnership agreements.** <u>Progress reported:</u> Developed a well-organized schedule; Students are required to prepare pre-lab assignments; Weekly take home quizzes have been created to cover entire week lessons; Each student is given unknowns from a variety of sites to work up, as required in lab setting; Challenges remain to find available clinical sites. The simulated Microbiology lab has been adapted further to include additional points for student culture work. The Microbiology simulated lab is now offered earlier in the spring semester for better content retention with an additional pre-clinical assignment to

	check for content retention to better gauge student knowledge. **Work on attaining approval from Legal for clinical sites; goal to have all contracts renewed and initiated in a timely manner. No students should have clinical delayed due to a contract delay.** Progress reported: As of FY15, most contracts are up to date, with a few still outstanding. Lower enrollment this year has meant enough clinical sites, but still a challenge to initiate and renew contracts on a timely basis. As of FY19, contracts are tracked and the situation has improved. **Continue to explore and add new clinical sites. Increase by one -two sites per year.** Progress reported: Reduced the clinical time requirement for Microbiology at hospital sites to two weeks. Have added two additional sites, Central DuPage Hospital, and DuPage Medical Group; Still very short on clinical sites for Microbiology and the situation for Microbiology is very unlikely to improve as it is an area that most labs have consolidated to a "core lab" site. Program is adapting. Additional clinical sites have become available, especially due to the merging of several hospitals that have become part of the Advocate system. **Recruitment of students from local high schools. Be able to run the Clinical Lab Assistant Program in the spring.** Progress reported: Attended District 300 student career fair spring 2015, though goal not met. Difficult to generate interest in CLT program, especially since current phlebotomists can usually be trained on-the-job to work as clinical lab assistant. Three students were in the program in Spring 2018 from dual credit at three different high schools. The program has seen an increase in the number of local high schools requesting health profession career fairs which will help better educate potential students about the Clinical Lab program. **Adapt new ideas to be utilized in the flipped classroom. Students come to class better prepared, by reading online PowerPoints, labs, and prepare admission tickets.**

	Progress reported: Students were given more graded assignments to prepare prior to class and labs. Students are turning in pre-labs, and admission tickets prior to beginning of class. Still a challenge getting all instructors on board with designing admission tickets and pre-labs which involve additional work for instructors. Process allows more time during class for students to develop the "hands on" skills which keeps them more engaged in their learning. **Continue to review eBooks.** Progress reported: Some eBooks have been adopted, though there are not many in the discipline to choose from that instructors and students both like. Program will continue to review additional publications as they become available, particularly those that are no-cost to students. **Look for ways to acquire additional equipment for student labs** Progress reported: Did not receive any equipment in FY15; due to hospital consolidation, many labs must return used equipment rather than donate it. More recently, the program was contacted by a lab that is going to donate two analyzers for the Clinical Hematology area. Having the additional analyzers will allow students more "hands on'' experiences that should help them to be better prepared when they arrive at their clinical sites. **Work on additional lab simulations for Microbiology clinical.** Progress reported: Added additional types of specimens for student use in lab. Developed additional student assessments Student evaluations are very favorable and test scores are improved. It is a challenge to keep microorganisms viable, however, a new $C0_2$ incubator has yielded much more success with organism viability. **Continue to align curriculum to new technologies utilized in the clinical lab.** Progress reported: Most courses utilize enhanced learning tools, such as media lab, you tube videos, and other internet links to follow the "flipped" approach.

	Still, it is a challenge to find enhancements that are valuable and proper length. The program recently added a large TV monitor that is hooked up to the teaching microscope which will be helpful in hematology, urinalysis, and microbiology, dramatically increasing the image quality, becoming a far better learning tool for the students. **Examine the possibility of establishing a clinical partnership with NIU. With a lack of clinical sites, need to brainstorm ways to possibly work together, share sites.** Progress reported: The program has been sharing sites with NIU, however there has not yet been a collaboration. One of the sites has recently been giving ECC students the same assessments as the NIU students and the program looks forward to the results of this latest testing. **Explore feasibility of the online fast-track degree completion option for students who have already completed all of their general education requirements.** Progress reported: No progress yet made.
CTE PROGRAM REVIEW ANALYSIS Complete the following fields and provide concise information where applicable. Please do not insert full data sets but summarize the data to completely answer the questions. Concise tables displaying this data may be attached. The review will be sent back if any of the below fields are left empty or inadequate information is provided.	
List all pre-requisites for this program (courses, placement scores, etc.).	The Clinical Laboratory Technology degree program and the Clinical Lab Assistant certificate program have the following entrance requirements: • Score in the 25th percentile or better in each section of the PSB-HOA exam • Grade of C or better in BIO-110 Principles of Biology or equivalent • Grade of C or better in CHM-101 Preparatory Chemistry or equivalent or grades of C or better in two semesters of high school chemistry within the last five years • Grade of C or better in MTH-097 Plane Geometry or equivalent or grades of C or better in two semesters of high school geometry or appropriate score on the geometry placement test

	• Grade of C or better in MTH-098 Intermediate Algebra or equivalent or appropriate score on the algebra placement test Entrance Requirements for Phlebotomy certificate: • Score in the 12th percentile or better in each section of the PSB-HOA exam • Official high school transcript or GED certificate Students must complete all required courses with grades of C or better to be eligible to sit for the medical laboratory technician certification exam offered by the American Society of Clinical Pathology (ASCP). Prior credits in biology, chemistry, or mathematics must have been earned within the last 10 years. Students must provide their own uniform and transportation to and from all clinical sites. Admission preference is given to candidates who are legal residents of Community College District 509, Elgin Community College. Working in district does not meet this requirement. Qualified applicants from other districts may be considered if space is available. Students who complete the clinical laboratory assistant certificate and who continue in the CLT program will receive credit for CLT-100 Intro to Clinical Lab Technology and CLT-120 Clinical Lab Technology Practicum I. The standards, policies, and procedures of the clinical laboratory technology program are published in the clinical laboratory technology student handbook. Copies of the student handbook may be obtained online at elgin.edu/clt.
Please list or attach all required courses (including titles) for completion of this program including institution required courses (e.g. student success, first year, general education requirements, etc.).	This program's current catalog information can be accessed here: https://elgin.edu/CLT
Provide a rational for content/credit hours beyond 30 hours for a certificate or 60 hours for a degree.	The A.A.S. in Clinical Lab Technology ranges from 67 to 73.5 credit hours. Nearly all of the courses in the program require labs along with the didactic portion of the course which increases the amount of course contact hours. In addition, the clinical portion of the program requires the students to spend additional

	hours at the hospital sites. Last, the variation exists to accommodate the different sequences of Biology and Chemistry coursework, as well as the allowance of CLT-105/106 from the certificate to substitute for CLT-100 within the degree.
INDICATOR 1: NEED	***RESPONSE***
1.1 What the labor market demand for the program is?	ECC students have been and continue to be highly employable. The market for phlebotomists and clinical lab technicians is very strong, and is projected to be so for the next several years. According to the latest salary information, the median salary for a Clinical Lab Technician is $51,770 ($24.89/hr). New graduates typically work on the evening or night shifts, as the more desirable day shift positions require seniority.
1.2 How has demand changed in the past five years and what is the outlook for the next five years?	Growth is expected over the next five years as current technicians retire and compound the shortage. According to the American Society for Clinical Pathology's 2018 Vacancy Survey (published in the American Journal of Clinical Pathology 2019;XX:1-14), data suggests "that a vigorous recruitment campaign should be put in place now to address the shortage in the future." Respondents from the survey indicated that "there is a great need for more graduates from accredited laboratory training programs to fill vacancies created by retirement," and "there is a crucial need to promote the field in high schools and colleges". The report also acknowledged the need for internship offerings for laboratory training programs.
1.3 What labor market information sources are utilized?	Programs rely on internal resources prepared by Institutional Research and the Perkins Grant Administrator as well as their own research. Sources include EMSI, IDES and BLS.
1.4 Does the institution/program ensure that there is a sufficient pipeline or enrollment of students to fulfill the labor market need? (i.e. how/where are students recruited for this program?)	The program attends high school career fairs and maintains a relationship with the college advisors. Recently, the program has begun reaching out to students in biology courses to inform them of career possibilities. Advisors have been invited to the labs to "look and learn" regarding necessary skills and course work. Having attended high school career fairs and other such events, the director has seen first-hand that most

	students are unaware of what a lab tech does, supporting the need to educate about *behind the scenes* health professions careers. More information is being given to the high schools through ECC's Director of High School Partnerships to outline the pathways to this career. For example, when students begin the phlebotomy program they are shown that they can add on Clinical Lab Assistant certificate in just one semester. After meeting prerequisites, they can progress to the associate's degree in CLT. As students (and parents) become more aware of the rising cost of higher education, the program should highlight the earning potential of its graduates. Another trend in the pipeline is returning students – those who earned a bachelor's degree in biology having difficulty finding employment and needing a certifiable skill.
1.5 Did the review of program need result in actions or modifications? Please explain.	The program and the local job market can accommodate more students, but the limiting factor continues to be the availability of clinical sites. As discussed, the program has adopted a simulated Microbiology lab on campus where students will complete a four-week clinical experience after their two-week rotation at an outside site. The program will continue to work at developing clinical spots for students, particularly with local employers who contact the college to hire graduates. The needs analysis also confirmed the need for ongoing recruitment through awareness. It is evident from the data that there needs to be more information disseminated to the high schools and beyond. There are way too many individuals coming to the program with biology degrees. These students may have saved time and money by first getting the associate's degree, then utilizing their workplace to facilitate reimbursement while continuing with their education. Once started in the field, there are many avenues for them to grow their career albeit technology, sales, education, medical school, and beyond.
INDICATOR 2: ***COST EFFECTIVENESS***	***RESPONSE***
2.1 How does the institution assess cost-effectiveness for CTE programming? Consider:	The costs associated with the Clinical Lab Technology program include: faculty and administrator salaries, maintenance and other contractual services, office and

• What are the costs to the institution associated with this program? • How do costs compare to other similar programs on campus? How is the college paying for this program and its costs (e.g. grants, etc.)?	instructional supplies, printing, software, publications and dues, and travel, which are paid through the Education fund. The CLT budget is in alignment with other programming at the college (e.g., health professions and science), which utilize significant equipment and disposable supplies for instruction. Revenue for the CLT program has grown over the last five years as enrollment climbs and expenses have remained relatively stable. Through careful budget monitoring, the CLT program has reduced its program loss the last two years by almost $50K.
2.2 If most of the costs are offset by grant funding, is there a sustainability plan in place in the absence of an outside funding source? Please explain.	N/A
2.3 What are ways that the college will be increasing the cost-effectiveness of this program?	CLT costs have remained low due to the use of adjunct faculty for the majority of teaching assignments on campus and 600+ hours of hands on clinical experience where technical skills are developed using state-of-the-art diagnostic laboratory analyzers. The program has been very fortunate to establish supportive relationships in the community. It is a major challenge for this area to keep up with the increasing costs of disposable supplies each year, and many clinical sites save outdated supplies which they donate to the program. In addition, the program has developed a relationship with Sysmex which provides low cost servicing for some of its instruments. This is especially helpful while contracts for instrumentation tend to be extremely expensive. Input from advisory committee members is solicited before any new lab equipment is purchased. This has resulted in equipment being selected that is appropriate for student use, relevant to industry, and durable.
2.4 Did the review of program cost result in any actions or modifications? Please explain.	There will always be a need to keep updated and current with the technology used in lab settings so that students are exposed to what they will encounter in their clinical experiences and on the job. The good news is the program should be able to take advantage of refurbished equipment, as more labs consolidate

	services and opt for consistent brands throughout their labs. Within the next five years there will be a need to purchase a Chemistry analyzer as the one donated to the program in 2012 will soon be obsolete. Some desktop analyzers are used as well as the larger one, but these seem to be sensitive, and not as reliable.
INDICATOR 3: QUALITY	***RESPONSE***
3.1 What are the program's strengths?	All faculty are lab techs and supervisors within the hospital lab setting. This is beneficial to the students as they bring "real world" cases and technology to the classroom. It is also very helpful that health professions programs have their own advisor and retention specialist to assist students. The program enjoys a wonderful learning space for lecture and lab. Students seem to be comfortable, and have a tendency to stay around after class to study.
3.2 What are the identified or potential weaknesses of the program?	The program continues to struggle with acquiring clinical sites. Hospital labs are going through such a transition now with the consolidation of services, it is becoming more difficult for them to take on students. Sites are needed for the program to survive, so more options are constantly being sought for the students.
3.3 What are the delivery methods of this program? (e.g. traditional format/online/hybrid/team-teaching etc.)? How does the program compare success rates of each delivery system?	All courses in the program leverage the use of D2L to post lectures and other course material, and half of them also use it for quizzes and exams. The Clinical Lab coursework operates in a Hybrid format. Students are on campus in class for lecture, some lab experience and skills assessment, and then go to clinical sites. The Lab Practicum courses (CLT-120/220/222) are held exclusively off campus. The phlebotomy courses are face-to-face only, and run in both 8 and 16 week scheduling formats. Individuals that are looking to get into health care quickly seem to prefer the compressed scheduling. The 8-week format has been adopted for the ICAPS program and is how the courses run over the summer. Enrollment, success and retention data from Institutional Research is disaggregated by modality. Programs are also given college averages for face-to-face, hybrid, and online sections of transfer and career-technical programs for benchmarking.

	Generally, success rates in online sections are somewhat lower than in face-to-face, but this is not always the case.
3.4 How does this program fit into a career pathway?	Clinical Lab Technician is a career pathway. The Clinical Lab Assistant and Phlebotomy certificates are stackable to the degree and can also lead to other opportunities. For example, phlebotomy is a skill that most nurses need but is not formally taught in the nursing program. By taking the course, it better prepares them for their future nursing career. Clinical lab assistant skills can be utilized in a doctor's office in combination with phlebotomy, and a medical assistant. As discussed, awareness can begin with high school students, and some coursework can begin with early college credit opportunities. Currently, graduates of the degree program can further their education at Northern Illinois University. In addition, there is an MLS (medical lab scientist) online program through University of Cincinnati. Illinois State University has a MLS program that is directly affiliated with a clinical site in Rockford. While most of the course work in the program is very technical and leads to specific areas of the lab, the experience students acquire in the program pair well with the technical skills utilized in other areas of the health care system, such as Information Technology, Equipment Technical Specialist, Laboratory Sales, and Management. In addition, the profession of Clinical Lab Technician is very similar to what the student at a four-year school earns. Graduates of both 2 and 4 year schools perform identical testing in the clinical lab. With a four-year degree, the Medical Lab Scientist can take on a supervisory role whereas the Clinical Lab Technician would need additional course work and experience.
3.5 What innovations have been implemented or brought to this program that other colleges would want to learn about?	As a means to provide awareness, education and appreciation about "behind the scenes" healthcare work, the CLT program as undertaken interdisciplinary projects with the histotechnology and nursing programs and the biology department. A phlebotomy video was made for nursing students to demonstrate the key protocol necessary to collect a good blood sample. Once nurses work in their chosen

	profession, most will be expected to draw blood yet many are not aware of specific protocol required to collect an acceptable sample. This interdisciplinary communication also serves to highlight the importance of health care teams, an important concept in the real-world settings with direct impact on patient care. Phlebotomy is part of the ICAPS program where students receive additional support and can complete the certificate in an accelerated fashion, gaining employment sooner. The CLT program also assists potential students in setting up job shadows, to help them decide on a health care profession.
3.6 Are there dual credit opportunities? If so please list offerings and the associated high schools.	There are dual-credit opportunities for high school students in phlebotomy (CLT-101/120) and Clinical Lab Assistant (CLT 105/106). Enrollment has been very low, and CLA has had several years with zero enrollment. All schools within the college district are eligible to take these courses, but awareness and communication has not been too focused, which will soon be improved. New students are anticipated for Spring 2020.
3.7 What work-based learning opportunities are available and integrated into the curriculum?	In the clinical lab program, students are required to do several weeks of clinical for each didactic course. For example, upon completing Clinical Hematology, the student must spend 150 hours at a clinical site where they work alongside trained clinical lab techs, doing much of the same work as the employee. In the phlebotomy program, students are required to do a 100 hour clinical following successful completion of the classroom portion. It is not uncommon for students to be hired by these sites upon completion. Within the program students also have the opportunity to go on field trips to be exposed to additional career options such as blood centers, forensic labs, or vet clinics.
3.8 Is industry accreditation required for this program (e.g. nursing)? If so, identify the accrediting body. Please also list if the college has chosen to voluntarily seek accreditation (e.g. automotive technology, NATEF).	The program is accredited by NAACLS, the National Accrediting Agency for Clinical Laboratory Sciences.

3.9 Are industry-recognized credentials offered? If so, please list.	NAACLS requires graduates to attain certification within 5 years of finishing the CLT degree program. Some employers will make it a requirement for hire, or expect employees to become ASCP (American Society of Clinical Pathology) certified within one year of employment. Students are encouraged to sign up to take the exam as soon as possible. The CLA and phlebotomy certificate students can get jobs upon completion, but are also recommended to sit for the ASCP exam as well.
3.10 Is this an apprenticeship program? If so, please elaborate.	N/A
3.11 If applicable, please list the licensure examination pass rate.	The program is proud of its licensure pass rates on the ASCP exam: 2018 - 100% 2017 – 83% (1 of 6 failed, has not done a retake) 2016 – 100% (1 of 7 failed by passed on retake)
3.12 What current articulation or cooperative agreements/initiatives are in place for this program?	Currently, graduates of ECC's program can further their education at Northern Illinois University in Medical Lab Science. Illinois State University has a MLS program that is directly affiliated with one of the program's clinical sites in Rockford. Also, if a student already has a bachelor's degree in biology or chemistry, they can sit for the MLS exam after working full-time for two years in a CAP accredited lab.
3.13 Have partnerships been formed since the last review that may increase the quality of the program and its courses? If so, with whom?	The program has been able to expand clinical offerings to cover a larger geographic area for the students that live outside of ECC's service boundaries. This has been very helpful, as it has led to several job opportunities for CLT graduates. Examples include the areas of Oak Lawn, Joliet, Aurora, and Winfield. As mentioned, programs and departments within the division are collaborating to support the concept of a health care team. The connection with the biology department is also hoping to build some career connections, overcoming the fact that many times, students are unaware of potential careers that are not patient focused. The phlebotomy program is a successful partnership with the ICAPS program. Overall, communication

	between instructors and student support is running very well.
3.14 What professional development or training is offered to adjunct and full time faculty that may increase the quality of this program?	There are plentiful and various professional development opportunities for faculty at the college. The faculty contract allows for professional development funds, and includes part-time faculty. The college offers in-house training on various subjects. Even in light of recent travel restrictions and other financial constraints, many faculty utilize professional development funds to attend conferences in their discipline. The adjunct CLT program faculty have currently expressed the desire to learn more about writing objectives, test questions, and the importance of assessment. In the past, much of their professional development has occurred within the hospital setting which is not typically academically driven. Additionally, the adjuncts aren't aware of how to efficiently utilize instructional technology. The program director strives to make them aware of updates, and encourages them to attend D2L help sessions. This is not easy, since all faculty work full-time in the field and cannot always make time for this. The director is a member of ASCP (American Society of Clinical Pathology) and ASCLS-IL (American Society of Clinical Lab Science). She serves on the ASCLS-IL board by attending meetings, volunteering at state events, and encouraging students to join. She has also served the NAACLS (accrediting body) as a site visitor and paper reviewer.
3.15 What is the status of the current technology and equipment used for this program?	Compared to what the director has seen at other colleges and programs, ECC's clinical lab program has a decent collection of equipment through fortunate donations. One current need is a label printer in phlebotomy, so the students can get practice ordering tests and printing actual labels for their specimens. As discussed in the Cost section above, the program, would like to purchase a newer chemistry analyzer in the next few years.
3.16 What assessment methods are used to ensure student success?	There are the usual quizzes and exams, as well as lab skills. With having the quizzes and tests on D2L, the instructors get immediate feedback regarding the test and question statistics. This is an excellent way for

	them to check for student understanding and learning. Since all courses have a lab component, students are assessed on their abilities to perform necessary skills in the clinical lab as well. If they fail, they must repeat until they get it correct. Faculty always like to know how the students performed on the certification exam. Students inform the director of the date they have signed up to take it so she can follow-up on the scores. This data is continually reviewed to determine areas of improvement. The program also participates in the college's standard course assessment process. An example of a major finding is from the practicum classes, CLT-220 and CLT-222. When students were not given a deadline in which to take their practicum exams, they put it off. When they put it off, they struggled with successfully passing their rotation exams the first time. Students are now given a two-week time frame to complete their rotation exams, which is communicated prior to their first rotation. For each day they delay, they lose a point. A change was also made to the grading of the final project for the conference course CLT-230. In the past, the students were given a group grade which resulted in a few students doing all of the work. It has been changed to individual grades with peer evaluation. The students are now held more accountable for their performance.
3.17 How satisfied are students with their preparation for employment?	It is difficult to assess student satisfaction, when only one former student responded to the survey. Two specific points of the program outcomes relate to employability, "Remain adaptable to changes that occur in the profession" and "Grow intellectually through continuing education." Before graduation, students are introduced to these concepts. Students can join both ASCP and ASCLS-IL organizations and often do. This allows them to attend meetings and conferences, keep informed through publications, and network with other students and potential employers. Students are encouraged to attend various events at the college to earn professional development points. The program also invites former graduates to campus

	to discuss certification exam preparation and career opportunities.
3.18 How is student satisfaction information collected?	Despite ICCB rescinding the requirement for the CT Follow-up Survey, the college's Institutional Research department continues to execute this survey protocol one year after certificate or degree completion. In addition, all completers are surveyed *each year*, not just prior to the review, so a full five years of responses can be studied. Each semester the program director asks the students for feedback regarding the instructor, the textbook, and fairness of quizzes, exams, homework. To enhance the feedback loop, she plans to also send out a google survey within three months of completion to determine how well they feel the program prepared them for the workplace.
3.19 How are employers engaged in this program? (e.g. curriculum design, review, placement, work-based learning opportunities)	The program curriculum is dictated by the professional organization (ASCLS- American Society of Clinical Lab Science), but changes are still discussed with the advisory members. The accreditors do not have a requirement regarding the number of hours students must spend at the clinical site, so the partners are key in determining if the time students spend at clinical is adequate. This becomes especially important as the lab becomes more automated; it is necessary to make sure that the time at clinical is well spent and covers the essential objectives. The advisory committee agrees that it is more efficient and effective for students to complete *all* clinical rotations at the same site, if possible. This creates more consistency, better transitioning through departments, and reduces onboarding time if the site is looking to hire the student upon graduation.
3.20 How often does the program advisory committee meet?	The Clinical Lab Technology advisory meetings occur annually and include adjunct faculty, clinical partners, and former students. This is a requirement for ongoing program accreditation. Scheduling for maximum attendance has been a challenge. The program may consider incorporating a conference call format.
3.21 How satisfied are employers in the preparation of the program's graduates?	Local employers and advisory members continue to take students on for clinical instruction and then employ them, which is a testament to the strength of

	the program. Some students are even hired prior to graduation in the capacity of a phlebotomist or lab assistant. Some sites that also train students from 4-year programs inform the director that the ECC students are on the same level or in some cases better than the students from the bachelor's programs.
3.22 How is employer satisfaction information collected?	Like most career-technical programs, CLT strongly relies on employer feedback received during Advisory meetings and from clinical rotation partners. The key is good communication regarding the learning objectives required by the college and the site's expectations for the students. When needed, updates are made to streamline the clinical rotation packets to make them more user-friendly for the students and the sites. The director checks in from time-to-time on new students and at new sites to make sure everything is going well.
3.23 Did the review of program quality result in any actions or modifications? Please explain.	Due to the shortage of clinical sites, the program needs to have flexibility with the clinical sequence. There have been students assigned to sites who have not had as much classroom instruction as others prior to the clinical experience. Students who already work in labs and those with prior degrees seem to adapt more easily in such a situation. As mentioned above, updates to the rotation manuals have been made, and good communication contributes to problem solving. The program will be taking steps to strengthen membership in the Advisory Committee and incorporating ideas and suggestions from other programs. It has been noted that copies of all textbooks for the program should be available for students in the library.

DATA ANALYSIS FOR CTE PROGRAM REVIEW

Please complete for each program reviewed. Colleges may report aggregated data from the parent program or report on enrollment and completion data individually for each certificate within the program. Provide the most recent 5 year longitudinal data available.

CTE PROGRAM	**Clinical Laboratory Technology**				
CIP CODE	**51.1004**				
	FY2014	*FY2015*	*FY2016*	*FY2017*	*FY2018*

*NUMBER OF STUDENTS ENROLLED (*SU/SR DUPLICATED SEATCOUNT ENROLLMENT for ALL HWM COURSES)*	235	222	168	195	215
COMPLETIONS					
AAS-CLINICAL LABORATORY TECHNOLOGY	8	5	8	7	8
BVS-CLINICAL LABORATORY ASSISTANT	0	0	0	0	3
BVS-PHLEBOTOMY	37	37	27	31	26
OTHER (PLEASE IDENTIFY) **OVERALL COURSE SUCCESS (A-C) RATES, excluding withdrawals*	81%	81%	82%	85%	88%
OTHER (PLEASE IDENTIFY)	Program also receives course-level enrollment and success data as part of their Quality review.				
How does the data support the program goals? Elaborate.	<u>ENROLLMENT</u> 2016 was the lowest enrollment year of the current review period, without a clear explanation for the drop. The seat counts have been inching back up since then, however. Phlebotomy is gaining due to the ICAPS program, but there have not been any CLA (clinical lab assistant students) since 2013. This was not surprising, as the assistant duties are ones that can be done by any number of lab employees. Recently, there has been more collaboration with the high schools, and spring of 2020 is expected to bring a high enrollment of both CLA and PBT students. It seems that when the economy is good there are fewer enrollments in the courses that typically do not pay very well, such as Clinical lab assistant and phlebotomy. <u>SUCCESS/RETENTION</u> The success rates in CLT courses have been climbing slightly over the past five years; due in part, hopefully, to interventions made to improve outcomes, as well as the influx of students already possessing biology degrees. Within-course retention is very high, in the mid to high nineties. Students need to be motivated to succeed in a selective admission program. Additionally, as wages are increasing and jobs are plentiful, the students need to succeed in order to get a career. Success has consistently been a bit higher for students entering the CLT degree program CLT-100 than those in the CLA/Phlebotomy certificates CLT-101, yet, it has been very helpful having the				

	extra support of assigned advising, retention, and wellness support services. Attrition in the degree program is most likely to happen after the second semester, typically due to work/life balance and the inability to put in the time required to be successful. COMPLETION There was a peak in 2014 for degrees and certificates in phlebotomy and CLT, which came on the tail of the recession enrollment boom. It was therefore unexpected that the awards were lower for the next years. Since retention is high, the program expects the trend of completions to follow growth in enrollments. This projection has to do with the solid job market in this field. There is always a need for phlebotomists, and those courses always fill. While Clinical Lab Assistant has not been popular for quite some time due in part to its low pay, it can be a stepping stone for someone to be employed in the setting while they complete the advanced coursework of the stackable degree. Degree seeking students are encouraged to complete the program within two years and then soon after take the certification exam. However, when individual need arises, the program has been able to be flexible for students who needed more time to complete. Scheduling can be a critical component of success – the more in advance a student can know their classroom and clinical schedule, the better they are able to make plans for the other parts of their lives. The program director meets with students prior to the start of each semester to verify their course enrollments and determine the CLT schedule in advance.
What disaggregated data was reviewed?	Institutional Research regularly provides enrollment and success data disaggregated for course modality and for early college credit students, such as tech prep and middle college. Within CTE programs specifically, IR provides statistics for program enrollment and completion disaggregated by gender, age and race/ethnicity. Patterns for CLT will be addressed in items below.
Were there gaps in the data? Please explain.	The data currently available shows a higher proportion of awards (61%) going to white students over the five year period, but this must be further studied, as underrepresented students are a growing segment of enrollment. Rather than disparate outcomes, the cumulative data may just be overshadowing the smaller

	numbers of Latinx students enrolled in the past. Refer to discussion in them below.
What is the college doing to overcome any identifiable gaps?	ECC is a Leader College within Achieving the Dream. Under this membership, the *Student Success Infrastructure* coordinates data analysis and new initiatives from an equity mindset. Many projects will address all students, but others are focused on specific populations. Across the college, faculty are very interested in learning more about existing achievement gaps and discussing strategies to close them. Generally, these discussions consider student support services and college policies, but where needed will veer into the classroom. CLT participates in the ICAPS program which is designed to give financial and academic/social supports to students, who often come from underserved populations.
Are the students served in this program representative of the total student population? Please explain.	The program skews heavily female, at least 85% each year. CLT students are slightly older, more likely to come from the age 23 – 39 groups than 17 – 22. The proportion of Latinx students in CLT has been increasing to 31% in 2018 (from 19% in 2014), compared to 42% for the college overall.
Are the students served in this program representative of the district population? Please explain.	The race/ethnicity distribution of the district is different than the college. CLT has slightly higher Latinx students than the district (31% compared to 26%) and less white students (49% compared to 61%).
REVIEW RESULTS	
Action	☒ Continued with Minor Improvements ☐Significantly Modified ☐Placed on Inactive Status ☐Discontinued/Eliminated ☐Other (please specify)
Summary Rationale Please provide a brief rationale for the chosen action.	In the next five years, the program would benefit from *more* interaction with its clinical partners to better serve students more efficiently and productively. There currently can be differences in student experiences, such as receiving one-on-one instruction at one site and a sit-and-read experience at another. Since these partners will need to hire well-trained assistants and technicians, they need to be a strong partner in the development of the workforce.

	The program has potential for growth. The degree leads to plentiful and well-paying jobs, but strategies must be in place to make potential students aware of the opportunities in healthcare that aren't patient facing.
Intended Action Steps What are the action steps resulting from this review? Please detail a timeline and/or dates for each step.	The most pressing and important plan of action is preparing the self-study report for review by the accrediting body by April 2020, and then the site visit in the fall. Specific tasks include: • Secure updated lesson plans from all instructors • Assemble updated enrollment and success data from IR • Assemble updated assessment data from the clinical sites NEXT FIVE YEARS • FA-2020- NAACLS accreditation visit • SP-2021- New program director (retirement)

Career & Technical Education

COLLEGE NAME:	Elgin Community College
FISCAL YEAR IN REVIEW:	FY2019

PROGRAM IDENTIFICATION INFORMATION

PROGRAM TITLE	*DEGREE OR CERT*	*TOTAL CREDIT HOURS*	*6-DIGIT CIP CODE*	*LIST ALL CERTIFICATE PROGRAMS THAT ARE STACKABLE WITHIN THE PARENT DEGREE*
Energy Management	**AAS**	**71.5**	**47.0201**	VS Energy Management
Renewable Energy Option	**AAS**	**67**	**47.0201**	BVS Renewable Energy

Address all fields in the template. If there are certificates and/or other stackable credentials within the program, please be sure to specify and sufficiently address all questions regarding each stackable credential.

Program Objectives What are the overarching objectives/goals of the program?	The program has defined the following learning outcomes for the degree: • Evaluate the energy use patterns for residential and commercial structures and recommend energy efficiency and alternative energy solutions for optimization of evaluated buildings. • Monitor the efficiency energy consuming systems, detecting, equipment failures, non-standard operating conditions and opportunities for more efficient use of existing systems. • Read and comprehend mechanical blueprints and control drawings. • Program building automation systems for heating, ventilating, air conditioning, and exterior lighting service independently; and determine whether to dispatch appropriate staff or to resolve problems remotely via the energy management system. • Assist in the writing of specifications for additional energy management systems, including the use of renewable systems in tandem with traditional fossil fuel systems in order to optimize the energy utilization of the system.

To what extent are these objectives being achieved?	The program outcomes are represented and introduced at appropriate points through the course curriculum and students are given ample time to practice and master course outcomes. But in its current form, the curriculum does not meet industry need and is not set up for students to easily complete. Revised program outcomes will be part of the upcoming curricular work.
Past Program Review Action What action was reported last time the program was reviewed?	**Meet with all members of the advisory council at their workplace to get input as to how the energy management curriculum is serving their industry.** • Progress reported: A new committee will have to be formed to assist the program in moving forward. **Make needed curriculum changes to better prepare students for the workforce, such as: Adding an OSHA 10-hour safety component to the program; increasing clock hours for ECS-110 Codes and Standards; modification to pre-requisites to ECS-106 and ECS-110.** • Progress reported: OSHA 10-hour is still in the works and ECS-110 Codes and Standards has been assessed. The course now runs and is a mandatory course in HVAC as well. The prerequisites to ECS-106 and ECS-110 have also been addressed so the course pathway has flow. All ECS courses will continue to get evaluated in order to redesign the program. Faculty have found many hidden prerequisites that make it difficult for students to complete certificates and the degree. **Increase community awareness of the program, courses, awards and careers.** • Progress reported: Once program is redesigned, the department will make the necessary efforts to increase the program's awareness. **The program as revised will need marketing expertise and a formal marketing plan with a defined budget commitment from the administration to grow interest in the specialization.** • Progress reported: Program not yet revised. **Expand the interest in energy management specialization by partnering with other**

	stakeholders in the community, such as: Weishaupt; CBRE; Advocate Sherman Hospital; Locals 399, 597; Milner Boiler; Alpha Controls. • Progress reported: There has been an expressed interest in the energy management program and it shows in the increased enrollment of its courses. Local 399 has presented for the students over the past several semesters. The program has on boarded additional faculty in the energy management program to assist in its growth.

CTE PROGRAM REVIEW ANALYSIS Complete the following fields and provide concise information where applicable. Please do not insert full data sets but summarize the data to completely answer the questions. Concise tables displaying this data may be attached. The review will be sent back if any of the below fields are left empty or inadequate information is provided.	
List all pre-requisites for this program (courses, placement scores, etc.).	The general education components of the AAS degree carry college readiness pre-requisites in reading, writing and math based on placement tests or successful completion of prior developmental coursework, otherwise there are no program prerequisites for the ECS program.
Please list or attach all required courses (including titles) for completion of this program including institution required courses (e.g. student success, first year, general education requirements, etc.).	This program's current catalog information can be accessed here: www.elgin.edu/energymanagement
Provide a rational for content/credit hours beyond 30 hours for a certificate or 60 hours for a degree.	Renewable Energy Option AAS – 67 credits Energy Management AAS – 71.5 credits Energy Management VS – 40 credits As will be discussed within this report, the program is in need of significant redesign to align with current industry needs, which includes revision/addition/deletion of courses, sequencing, better stacking of certificates, and reduction of credit hours. As it currently stands, the ECS program has many hidden prerequisites hindering student progress (see item 3.2 below for detail). This will be addressed by faculty in the upcoming review period.
INDICATOR 1: NEED	***RESPONSE***
1.1 What is the labor market demand for the program?	The program is meant to train wind turbine technicians, solar installers, energy auditors, and

	sustainability professionals. Currently there are minimal employment opportunities in the Chicagoland area for wind turbine technicians. However, students who are willing to relocate to central Illinois, will have many opportunities as a wind turbine technician who can earn a mean hourly wage of $27/hr. (entry level $18/hr., journeymen $38/hr.). The regional needs will affect this data.
1.2 How has demand changed in the past five years and what is the outlook for the next five years?	The program does expect a significant increase over the next five years. The demand for jobs in the energy management sector is steady increasing and the program, once revised, will have clear completion pathways. When energy management is tied to HVAC, there is an 18% growth over the next five years. According to the department of labor and statistics, the largest growing occupations over the next 7 years are solar photovoltaic installers and wind turbine technicians. For Illinois, there is an expected 12% growth for wind turbine installers and mechanics.
1.3 What labor market information sources are utilized?	Programs rely on internal resources prepared by Institutional Research and the Perkins Grant Administrator as well as their own research. Sources include EMSI, IDES and BLS.
1.4 How does the institution/program ensure that there is a sufficient pipeline or enrollment of students to fulfill the labor market need? (i.e. how/where are students recruited for this program?)	Developing an educational pipeline is in the works along with the redesign. As the program is rebuilt, opportunities exist to share with academic advising the changes in efforts to promote to existing and potential new students to the program. The program needs to focus on early college credit, new high school graduates, and employees who need continuing education credits. Faculty will attend high school career fairs and rely on advertising efforts from the college. There also is potential for employer partnerships to create employment opportunities for students and to establish talent pipeline for labor shortages.
1.6 Did the review of program need result in actions or modifications? Please explain.	The ECS program will be revamped to meet the needs of students and community. It will require course realignment, industry and faculty input and financial support from the institution.

	This review has helped shape the vision for the redesign of the program.
INDICATOR 2: COST EFFECTIVENESS	***RESPONSE***
2.1 How does the institution assess cost-effectiveness for CTE programming? Consider: • What are the costs to the institution associated with this program? • How do costs compare to other similar programs on campus? How is the college paying for this program and its costs (e.g. grants, etc.)?	Operating costs and maintaining the equipment are the greatest costs. Most funding pulls from the Education Fund, though some also are used from Perkins grant dollars. Since enrollment is currently low, the cost will be less than other CTE programs. However, once enrollment picks up, it will be similar to other CTE programs.
2.2 If most of the costs are offset by grant funding, is there a sustainability plan in place in the absence of an outside funding source? Please explain.	As the program is rebuilt, rationale will be provided to utilize Perkins funding for the purchase of new and emerging equipment for the program. However, that is yet to be determined.
2.3 What are ways that the college will be increasing the cost-effectiveness of this program?	Ensuring that the program has clear completion pathways will make the program cost efficient and effective.
2.4 Did the review of program cost result in any actions or modifications? Please explain.	The largest challenges are determining a budget for the program. Currently, the HVAC and ECS programs share a budget. Moving forward, calculating the needs of the program is key to its success. Purchasing trainers will be a large expense for the program but it will be a key factor in its overall success to effectively deliver instruction. Technical manuals and references for faculty will also be needed since the program has limited resources. Determining operating costs and finding a space for the program to grow will also be a key factor. The review of program cost has created an up-to-date awareness of the needs and challenges facing the program as it moves forward.
INDICATOR 3: QUALITY	***RESPONSE***
3.1 What are the program's strengths?	The program's in-depth detail into topics relating to energy management are its strengths.

3.2 What are the identified or potential weaknesses of the program?	The hidden prerequisites and no clear completion pathways are the weaknesses of the program. For example, the basic vocational specialist certificate is listed at 17 credits, however, ECS-202 Commercial Load Calculations has prerequisites of HAC-102, 114, 119, an additional 7.5 credits that have not been clearly stated and that would make the certificate a total of 30.5 credits.
3.3 What are the delivery methods of this program? (e.g. traditional format/online/hybrid/team-teaching etc.)? How does the program compare success rates of each delivery system?	Currently, the program only offers face-to-face instruction, though it is in the process of incorporating more distance learning technologies. D2L will become a platform for all students to use. Many adjuncts are still unaware of how to use it, so there is an opportunity for professional development offered by the college. The program is scheduled in an 8-week model that aligns well with other CTE programs.
3.4 How does this program fit into a career pathway?	The program will provide students with the fundamentals needed to enter the workforce in a career they choose at certificate and Associate's degree levels.
3.5 What innovations have been implemented or brought to this program that other colleges would want to learn about?	None, until the revisions are complete.
3.6 Are there dual credit opportunities? If so please list offerings and the associated high schools.	The program does offers ECS-111, 112, 113 and 117 to tech prep students. High schools who participate are districts U-46, 300, 301 and 303.
3.7 What work-based learning opportunities are available and integrated into the curriculum?	Students are encouraged to participate in summer internship programs.
3.8 Is industry accreditation required for this program (e.g. nursing)? If so, identify the accrediting body. Please also list if the college has chosen to voluntarily seek accreditation (e.g. automotive technology, NATEF).	Accreditation is not required for the program but accreditation with HVAC excellence may be pursued within the next 5 years.
3.9 Are industry-recognized credentials offered? If so, please list.	The program is aligning itself to HVAC excellence which will lead to certifications in Green awareness, duct and envelop testing, residential energy auditor, and low- and high-pressure boiler licenses.

	Additionally, students may earn credentials in the International residential and mechanical codes.
3.10 Is this an apprenticeship program? If so, please elaborate.	N/A.
3.11 If applicable, please list the licensure examination pass rate.	N/A.
3.12 What current articulation or cooperative agreements/initiatives are in place for this program?	Currently, the program does not have any formal articulation agreements in place. The ECS program contributes to the HVAC program and to other 4-year schools like NIU and SIU.
3.13 Have partnerships been formed since the last review that may increase the quality of the program and its courses? If so, with whom?	The program has not had much growth due to community interest and pending course/certificate design. However, the partnership with the HVAC program has proven to be beneficial. As a result, several courses have had increased and prolonged enrollment. The program has a partnership with HVAC Excellence, the National Association of Stationary Operating Engineers (NASOE), and the International Code Council (ICC). Students can become members of these organizations and are encouraged to do so. They can attend conferences and earn credentials from these organizations.
3.14 What professional development or training is offered to adjunct and full time faculty that may increase the quality of this program?	There are plentiful and various professional development opportunities for faculty at the college on various subjects. The faculty contract allows for professional development funds, and includes part-time faculty. Many faculty utilize professional development funds to attend conferences in their discipline. The ECS program has currently expressed the desire to learn more about incorporating D2L technology into face-to-face instruction as well as means to stay current with ever-changing and emerging trends in the industry. The department attends the annual HVAC Excellence conference and other energy management workshops and training seminars.
3.15 What is the status of the current technology and equipment used for this program?	Technology is outdated and does not meet industry demands. The program needs more space and funds to purchase new trainers. Amatrol has trainers and

	curriculum ready for faculty to use and incorporate into their classrooms. Additionally, the program has one solar panel trainer and but no equipment to show students how to install the solar panels.
3.16 What assessment methods are used to ensure student success?	Common methods include conversations, labs, and student-employer feedback. The program uses Spartan Alert to address at-risk students. There is potential for added tutoring services and library resources.
3.17 How satisfied are students with their preparation for employment?	There is not enough data to determine the satisfaction rates; only one graduate responded to the CT survey over the last five years.
3.18 How is student satisfaction information collected?	Despite ICCB rescinding the requirement for the CT Follow-up Survey, the college's Institutional Research department continues to execute this survey protocol one year after certificate or degree completion. In addition, all completers are surveyed *each year*, not just prior to the review, so a full five years of responses can be studied.
3.19 How are employers engaged in this program? (e.g. curriculum design, review, placement, work-based learning opportunities)	As part of the redesign, employers will be included in curriculum design and additional insights including industry trends and required program outcomes. This is all consistent with the need to rebuild the program over the next five years to align with industry need.
3.20 How often does the program advisory committee meet?	An advisory committee for ECS last met in Fall 2017. Along with HVAC, the ECS program needs to have a more robust advisory committee. Attendance and participation have been issues in the past. The programs will consider merging both advisory committees since they are similar.
3.21 How satisfied are employers in the preparation of the program's graduates?	Yet to be determined once graduates from the new program are in the field.
3.22 How is employer satisfaction information collected?	This is ongoing and part of the resurgence of advisory committees, which will create an opportunity to collect such information, which will lean heavily on the Advisory Committee, as most CTE programs do.

3.24 Did the review of program quality result in any actions or modifications? Please explain.	Conversations among faculty and dean have already begun and a preliminary plan is in place. The need for funds and space has been identified. As discussed here, curriculum needs significant revision. The program's sequencing and credit hours are not the best. Over the next 5 years, the program will create stackable certificates, remove hidden prerequisites, and decrease the amount of credit hours needed. This will be guided by the alignment of curriculum to industry needs and emerging trends brought about by advances in technology.

DATA ANALYSIS FOR CTE PROGRAM REVIEW

Please complete for each program reviewed. Colleges may report aggregated data from the parent program or report on enrollment and completion data individually for each certificate within the program. Provide the most recent 5 year longitudinal data available.

CTE PROGRAM	**Energy Management**				
CIP CODE	**47.0201**				
	FY2014	FY2015	FY2016	FY2017	FY2018
NUMBER OF STUDENTS ENROLLED (*SU/SR DUPLICATED SEATCOUNT ENROLLMENT for ALL HWM COURSES)	70	17	4	2	35
COMPLETIONS					
AAS-ENERGY MANAGEMENT	N/A	1	0	0	0
VS-ENERGY MANAGEMENT	0	0	0	1	0
AAS-RENEWABLE ENERGY OPTION	3	2	0	0	0
BVS-RENEWABLE ENERGY	5	1	0	0	0
OTHER (PLEASE IDENTIFY) *OVERALL COURSE SUCCESS (A-C) RATES, excluding withdrawals	97%	88%	100%	100%	100%
OTHER (PLEASE IDENTIFY)	Program also receives course-level enrollment and success data as part of their Quality review.				
How does the data support the program goals? Elaborate.	The program has been declining in enrollment since before 2014. The hidden prerequisites, course scheduling and lack of clear completion pathways have caused the program to sit at a standstill. As a result, the program will be redesigned to have a core curriculum, and then enrollment numbers in ECS should begin to increase over the next five year cycle.				

	In order to increase enrollment, the HVAC program adopted ECS-103, 110, and 112 effective Fall 2016. With this cross-over, the selected courses have seen an increase in growth compared to when they were only in the ECS program. The highest enrollment numbers belong to those classes that are relevant to the industry and shared with the HVAC program. Course level retention over the last 5 years has been high, close to 100%. The variation noted in 2017 is due to the effect of very low enrollment and just one student dropped. The students in the ECS program are not completing in an acceptable time frame or not completing at all. Certificate and degree completion has stayed stagnant for ECS, the reason for the trends is that the program does not currently meet student/industry needs. There has been conversations about how to increase enrollment and student success. What faculty have discovered is that the initial program was built with HVAC *graduates* in mind. In its inception, the ECS program used a grant which was partnered with Kane County. The students enrolled consisted of actively working professionals that desired additional training. The ECS certificates/degrees at that time would be an add-on for HVAC students.
What disaggregated data was reviewed?	Institutional Research regularly provides enrollment and success data disaggregated for course modality and for early college credit students, such as tech prep and middle college. Within CTE programs specifically, IR provides statistics for program enrollment and completion disaggregated by gender, age and race/ethnicity. Patterns for ECS will be addressed in items below.
Were there gaps in the data? Please explain.	Very small n-sizes across the years makes this disaggregated analysis cautionary. For example, in 2018, 29% of students enrolled in ECS coursework were white and 57% were Latino, but this proportion has flip-flopped over the years. Consistently, however, all students have been male, and the majority are under the age of 30. 94% of students earning awards since 2014 have been white, with 1 graduate being African-American.
What is the college doing to overcome any identifiable gaps?	ECC is a Leader College within Achieving the Dream. Under this membership, the *Student Success Infrastructure* coordinates data analysis and new initiatives from an equity mindset. Many projects will address all students, but others are focused on specific populations. Across the college, faculty are very interested

	in learning more about existing achievement gaps and discussing strategies to close them. Generally, these discussions consider student support services and college policies, but where needed will veer into the classroom.
Are the students served in this program representative of the total student population? Please explain.	As mentioned above, it is not advised to do this comparison with very low and fluctuating ECS numbers.
Are the students served in this program representative of the district population? Please explain.	As mentioned above, it is not advised to do this comparison with very low and fluctuating ECS numbers.
REVIEW RESULTS	
Action	☐ Continued with Minor Improvements ☒ Significantly Modified ☐ Placed on Inactive Status ☐Discontinued/Eliminated ☐ Other (please specify)
Summary Rationale Please provide a brief rationale for the chosen action.	The ECS program needs to be redesigned to match industry need. It will focus on having stackable certificates that lead to degree completion and also address the high credit hour demand for the AAS to more closely match the standards of 60 and 30 credits.
Intended Action Steps What are the action steps resulting from this review? Please detail a timeline and/or dates for each step.	• Develop a core curriculum for the program and remove outdated courses (FA19/SP20) • Redesign certificate BVS and VS offerings to be stackable (FA19/SP20) • Make the AAS close to 60 credits (FA19/SP20) **The Next Five Years** • Redesign degree options for energy management and renewable energy; possibly streamlined to one degree (FA19 – FA20) • Communicate clear completion pathways for certificates and degrees (FA19 – FA21) • Pull together industry partners to advise ECS (and HVAC) (FA19 – FA24) **RESOURCES** Increasing faculty, purchasing trainers, and having a dedicated space for instruction will all be needed.

Career & Technical Education				
COLLEGE NAME:	Elgin Community College			
FISCAL YEAR IN REVIEW:	FY2019			
PROGRAM IDENTIFICATION INFORMATION				
PROGRAM TITLE	*DEGREE OR CERT*	*TOTAL CREDIT HOURS*	*6-DIGIT CIP CODE*	*LIST ALL CERTIFICATE PROGRAMS THAT ARE STACKABLE WITHIN THE PARENT DEGREE*
Health and Wellness Management	**AAS**	**63**	**31.0501**	BVS Group Fitness Professional BVS Personal Training
Address all fields in the template. If there are certificates and/or other stackable credentials within the program, please be sure to specify and sufficiently address all questions regarding each stackable credential.				
Program Objectives What are the overarching objectives/goals of the program?	Upon completion of this program, graduates will be able to: • Apply the knowledge and skills of a fitness professional to a variety of fitness environments. • Create exercise and fitness plans for individuals and groups to assist in achieving their fitness goals. • Describe relevant human anatomy, physiology and kinesiology and integrate modifications to fitness plans and classes as needed. • Practice and facilitate safe and sanitary methods for all clients in all settings.			
To what extent are these objectives being achieved?	There is a plan to review the curriculum in the near future to evaluate critical components such as credit hours, pre-requisites, course outcomes, sequencing, and stackable credentials.			
Past Program Review Action What action was reported last time the program was reviewed?	**Develop sample course sequences depending on which semester a student has enrolled in the program.** • Progress reported: Sample course sequences for students starting the HWM program in the fall semester as well as those beginning the program in the spring semesters were developed and approved by the Curriculum Committee, distributed to Advising and placed in the college catalog (fall start). • Students are encouraged to start in the fall semester when the sequencing begins. The new			

	personal training certificate also provides a course sequence being offered in the fall. The most HWM courses are currently scheduled in blocks so students can take courses in blocked and sequential periods of time. For instance, the personal training certificate courses are Monday – Thursdays from 3:30 until 6:30. **Utilize services of the marketing department at ECC to promote the HWM program and increase enrollment.** • Progress reported: The marketing department at ECC was consulted and several promotional pieces were developed in the 2013/2014 academic year that advertised both the Advanced Group Fitness Certificate as well as the HWM degree program. • Due to state budget and marketing budget concerns, there was no marketing efforts over the last few years until the launch of the personal training certificate. The program director and marketing worked together over the spring and summer of 2018 to promote the new certificate and in conjunction raise awareness regarding other HWM offerings. **Add to current faculty keeping with a goal of increasing its diversity.** • Progress reported: Although diversity remains a goal, there is minimal need to add to current faculty. • In 2016, the program hired an additional instructor who brings great experience to the department as a group fitness instructor, personal trainer, massage therapist, motivational speaker, swim coach and triathlon coach. Due to low enrollment, she has only taught a few sections but the program is looking forward to utilizing her experience more in the future. **Continue exploration of adding Program Director position for HWM program.** • Progress reported: In the Fall of 2015, the massage therapy program director offered to add the HWM department to her responsibilities. The change was official in 2016. She has created the new personal training certificate, created a new introductory

course and started exploring revisions and options to the AAS degree.

Refine and revise program-level learning outcomes as needed.

- Progress reported: There is no current progress although the program director and faculty are planning to examine program outcomes and course objectives for all program courses and group fitness certificate after the first run of the personal training certificate completes at the end of the 2018 Fall semester.

Complete a full cycle of course assessment for all offerings.

- Progress reported: Course assessments have been completed when possible. Course assessments have not always been completed on schedule because of low enrollment and canceled sections.

Create an HWM student committee/club.

- Progress reported: With low enrollment, it would be difficult to initiate and sustain a student club.

Review current course schedule and determine if changes should be made in course offerings.

- Progress reported: Several changes were made in course offerings within the program. Classes were not added or taken away but several required courses were re-assigned as elective courses so that students have more of a selection when choosing an elective area of study. These changes were implemented Fall 2015.
- This is an area of continued examination. Changes have been made to align courses on the schedule to eliminate course being spread out over the week. Additional changes will take place as needed with the upcoming degree, certificate and course reviews.

Add multiple sections of courses within the program and add distance learning alternatives to required courses where feasible.

- Progress reported: As student enrollment in the program increases, multiple sections will be considered. At the present, there has not been a need for added sections or more distance learning options.

	Develop surveys for HWM graduates to gain information about how well the program prepared them for fitness careers. • Progress reported: Although informal conversations with program graduates concerning this topic have occurred, a formal survey has not yet been developed.

CTE PROGRAM REVIEW ANALYSIS Complete the following fields and provide concise information where applicable. Please do not insert full data sets but summarize the data to completely answer the questions. Concise tables displaying this data may be attached. The review will be sent back if any of the below fields are left empty or inadequate information is provided.	
List all pre-requisites for this program (courses, placement scores, etc.).	Prospective students must complete and submit the health professions application and fee. Students must obtain malpractice insurance prior to starting an internship. The BVS certificates have no other prerequisites to start. The general education components of the AAS degree carry college readiness pre-requisites in reading, writing and math based on placement tests or successful completion of prior developmental coursework.
Please list or attach all required courses (including titles) for completion of this program including institution required courses (e.g. student success, first year, general education requirements, etc.).	This program's current catalog information can be accessed here: https://elgin.edu/academics/departments/health-wellness-management/
Provide a rational for content/credit hours beyond 30 hours for a certificate or 60 hours for a degree.	The degree is currently 63-65 credits depending on the electives chosen. If the degree is revised, the department would look at bringing it down to the standard 60 credits. Currently, three biology requirements add 12 credits.
INDICATOR 1: NEED	***RESPONSE***
1.1 What is the labor market demand for the program?	The job market is healthy; median hourly earnings are $16.57 for all types of fitness positions, $18.70 for fitness trainers and instructors (EMSI).
1.2 How has demand changed in the past five years and what is the outlook for the next five years?	Annual projected growth is 7%. The EMSI projects growth in trainers and instructors at 8% from 2018-2023. US DOL Labor Statistics project 10% growth from 2016-2026.

1.3 What labor market information sources are utilized?	Programs rely on internal resources prepared by Institutional Research and the Perkins Grant Administrator as well as their own research. Sources include EMSI, IDES and BLS.
1.4 Does the institution/program ensure that there is a sufficient pipeline or enrollment of students to fulfill the labor market need? (i.e. how/where are students recruited for this program?)	Students are not heavily recruited; rather, they will find out about the program online via the college website, or learn about it from someone else. Current students may also find out about it through Advising or Career Services. The introduction of the Personal Training Certificate Program was a definite improvement that addressed students' needs and career plans. Based on the high retention and success of the students completing the PT Certificate, an Advanced Certificate Program has been discussed as yet another way to expose students to higher-level courses without having to commit to pursuing the full degree. Enrollment would be expected to increase as enhancements make the program more attractive and practical.
1.5 Did the review of program need result in actions or modifications? Please explain.	Within the community, fitness professionals can work in a wide variety of environments, from very simple to very high-tech. An updated fitness center at the college with and updated fitness studio sound system would enhance student success by exposing them to the equipment and materials they will be using professionally. Additional focus is expected to be gained from the advisory committee in spring 2019.
INDICATOR 2: COST EFFECTIVENESS	***RESPONSE***
2.1 How does the institution assess cost-effectiveness for CTE programming? Consider: • What are the costs to the institution associated with this program? • How do costs compare to other similar programs on campus? • How is the college paying for this program and its costs (e.g. grants, etc.)?	This program has a comparatively small operating budget within the Education fund. Salary costs are low with two adjuncts. The program utilizes the fitness center often, but does not have significant needs beyond that.

2.2 If most of the costs are offset by grant funding, is there a sustainability plan in place in the absence of an outside funding source? Please explain.	N/A
2.3 What are ways that the college will be increasing the cost-effectiveness of this program?	The program has a director who volunteered in 2016 to add this department to her current full-time administrator responsibilities without additional compensation, eliminating the cost of an instructional coordinator stipend. The biggest challenge at this time is the lack of enrollment for the degree program. The new personal training certificate option has resulted in more student interest and possible expansion can be explored further.
2.4 Did the review of program cost result in any actions or modifications? Please explain.	As mentioned, the program would benefit to upgrades in the fitness center, but this would be an institutional cost, not one borne by the program alone. Funding and other time-based resources may be needed for course development. Ultimately, if the program grows to add additional certificates, an increase in the director's salary would be requested to account for the increased workload.
INDICATOR 3: QUALITY	***RESPONSE***
3.1 What are the program's strengths?	Students in the program are exposed to a broad knowledge-base in the area of fitness and wellness. Students are taught to look at information and trends in the field with a critical eye, determine what is sound and if the source is reputable. Students have many opportunities to apply their knowledge through hands-on activities and "real-life" programming and facilitation. Students are exposed to various specialty areas within the field and are encouraged to consider related fields.
3.2 What are the identified or potential weaknesses of the program?	Weakness lies in the number of students that complete the full program, which translates to low enrollment and class cancellations. Some courses may only run once in two-years, which may affect a student's completion trajectory. It also has been observed that the Biology requirements of the degree pose a barrier for those who cannot pass them. A review of these

	requirements will examine which key skills and backgrounds are essential to career success, including a study of similar programs in the surrounding area.
3.3 What are the delivery methods of this program? (e.g. traditional format/online/hybrid/team-teaching etc.)? How does the program compare success rates of each delivery system?	There is one course offered exclusively online (HWM-139), one course offered interchangeably online and face-to-face (HWM-145) and the rest are solely face-to-face offered in person. The online modality helps the small program balance scheduling and operational efficiencies, though the format may not be attractive to all students. Other courses by their hands-on active nature, can only be done face-to-face, though many traditional format HWM courses use D2L to provide supplemental materials and facilitate group discussions. Enrollment, success and retention data from Institutional Research is disaggregated by modality. Programs are also given college averages for face-to-face, hybrid, and online sections of transfer and career-technical programs for benchmarking. Generally, success rates in online sections are somewhat lower than in face-to-face, but this is not always the case.
3.4 How does this program fit into a career pathway?	The certificates and the degree are designed for immediate employment as Personal Trainers, Group Fitness Instructors, Health Club/Gym facility staff or managers. Interestingly, most other colleges' personal training offerings are longer than ECC's, which supports the idea of adding advanced personal training certificates for those that may want to go farther in their knowledge than basic certification. Although the HWM credits are non-transferable, the knowledge attained in these courses would assist a student pursuing a degree in exercise science or kinesiology as well as those pursing Physical Therapist Assistant or Massage Therapy. NIU has Bachelor degrees in Athletic Training, Kinesiology and Sports Management.
3.5 What innovations have been implemented or brought to this program that other colleges would want to learn about?	The addition of the introductory course (HWM-100) was a response to provide students with more knowledge and information about the industry and career options.

3.6 Are there dual credit opportunities? If so please list offerings and the associated high schools.	No, not currently but the department is interested in exploring this option in the future. High school students taking advantage of early college credit opportunities may complete some of the general education requirements of the degree, such as BIO-110: Principles of Biology.
3.7 What work-based learning opportunities are available and integrated into the curriculum?	Students pursuing the degree program have a personal training internship experience in HWM-150.
3.8 Is industry accreditation required for this program (e.g. nursing)? If so, identify the accrediting body. Please also list if the college has chosen to voluntarily seek accreditation (e.g. automotive technology, NATEF).	No.
3.9 Are industry-recognized credentials offered? If so, please list.	Yes, completers are eligible for ACSM/ACE Certification (or any other NCCA Accredited Certification in Personal Training or Group Fitness Instruction).
3.10 Is this an apprenticeship program? If so, please elaborate.	No.
3.11 If applicable, please list the licensure examination pass rate.	There is no licensure exam in the industry, though graduates typically need to pass a certification exam to be employed. Certifications that are NCCA Accredited are preferred and encouraged within the HWM program. While the program does not officially track these rates, the current known level of students taking a certification exam and passing is high.
3.12 What current articulation or cooperative agreements/initiatives are in place for this program?	None.
3.13 Have partnerships been formed since the last review that may increase the quality of the program and its courses? If so, with whom?	The program as not developed new partnerships.
3.14 What professional development or training is offered to adjunct and full time faculty that may increase the quality of this program?	There are plentiful and various professional development opportunities for faculty at the college. The faculty contract allows for professional development funds, and includes part-time faculty.

	The college offers in-house training on various subjects. Even in light of recent travel restrictions and other financial constraints, many faculty utilize professional development funds to attend conferences in their discipline. Program faculty have currently expressed the desire to learn more about educational theories and best practices to support adult learners. The current long-standing adjunct faculty in the program are members of various organizations which bring knowledge, current research and resources to students, such as IDEA Health and Fitness Association and the National Strength and Conditioning Association.
3.14 What is the status of the current technology and equipment used for this program?	Aside from the mentioned benefits to upgrades within the college's fitness center, equipment within the program is currently satisfactory. Additional classroom equipment would be needed to support program growth (i.e., blood pressure cuffs, calipers, HR monitors, fitness equipment).
3.15 What assessment methods are used to ensure student success?	The program is monitored by the director and faculty for student success via student feedback and grade success. Quizzes, tests, projects, presentations, case studies and fitness assessments are typically used within the classroom. The program follows the established course assessment schedule except for when sections are cancelled. Most such findings were related to small changes in instruction, instructional activities, allotment of time devoted to topics and incorporating external resources. Changes were made when possible.
3.16 How satisfied are students with their preparation for employment?	This is a difficult indicator, as the program has received only 1 response to the follow-up survey conducted by IR. The courses with the highest success rate tend to include a "hands on" component where students can put into practice what they have learned. Students have commented that they prefer face-to-face learning modalities as opposed to online or hybrid formats because they prefer a more dynamic and interactive learning experience.

3.17 How is student satisfaction information collected?	Despite ICCB rescinding the requirement for the CT Follow-up Survey, the college's Institutional Research department continues to execute this survey protocol one year after certificate or degree completion. In addition, all completers are surveyed *each year*, not just prior to the review, so a full five years of responses can be studied. There are not any additional mechanisms formally in place for this program.
3.18 How are employers engaged in this program? (e.g. curriculum design, review, placement, work-based learning opportunities)	Employers are connected to the program through internship opportunities and the Advisory Committee. As the program discusses its future directions, it will rely on them as well as current faculty for input from their professional experiences. The recent addition of the personal training certificate resulted from such discussion. The certificate gave student the opportunity to enter the fitness industry sooner thus accelerating learning and employability.
3.19 How often does the program advisory committee meet?	Because of the size of the program, meetings have not been occurring regularly. The advisory board met in May 2019 with six of eight members in attendance. Six members of the board are area employers.
3.20 How satisfied are employers in the preparation of the program's graduates?	The program does not have formal data on this indicator. Student's recently completing HWM internships have received high ratings in their knowledge-base from their supervisors.
3.21 How is employer satisfaction information collected?	Like most CTE programs, HWM relies on employer feedback received primarily during Advisory meetings. Impressions can also be gleaned from the Internship coordinator. If necessary, formal survey feedback can be solicited in cooperation with Institutional Research.
3.22 Did the review of program quality result in any actions or modifications? Please explain.	The direction of the HWM degree has been a topic of conversation since 2016. This review and the advisory committee are helping to define it. The addition of HWM-100: Introduction to Health and Wellness was one avenue to provide a strong foundation for students in the field. One new development is the possible advanced personal training certificate, which would offer certified professionals additional training. Major curriculum analysis will also be undertaken to include

	updating courses, combining courses, revising credit (lecture/lab) hours, composition of AAS degree requirements and electives, renaming course and prerequisites. There are currently two active faculty in the department. If enrollment were higher, it would be beneficial to employ one or two more faculty to create more diversity and bring additional experience to the classroom.

DATA ANALYSIS FOR CTE PROGRAM REVIEW

Please complete for each program reviewed. Colleges may report aggregated data from the parent program or report on enrollment and completion data individually for each certificate within the program. Provide the most recent 5 year longitudinal data available.

CTE PROGRAM	**Health and Wellness Management**				
CIP CODE	**31.0501**				
	FY2014	*FY2015*	*FY2016*	*FY2017*	*FY2018*
*NUMBER OF STUDENTS ENROLLED (*SU/SR DUPLICATED SEATCOUNT ENROLLMENT for ALL HWM COURSES)*	96	48	48	73	55
COMPLETIONS					
AAS – HEALTH AND WELLNESS MANAGEMENT	5	2	1	1	0
BVS-GROUP FITNESS PROFESSIONAL	2	2	0	1	1
BVS-PERSONAL TRAINING	(New certificate for FY19)				
OTHER (PLEASE IDENTIFY) **OVERALL COURSE SUCCESS (A-C) RATES, excluding withdrawals*	95%	87%	77%	88%	91%
OTHER (PLEASE IDENTIFY)	Each program also receives course-level enrollment and success data as part of the Quality review.				
How does the data support the program goals? Elaborate.	Course success and retention is generally strong within the HWM courses. However, being a small, newer program it has always struggled with low enrollment particularly in some of the courses with prerequisite requirements. Students have had difficulty passing some of the science-based courses that would enable them to continue with the next HWM courses in the sequence. Prior to enrolling in HWM-140: Athletic Injury Management and HWM-142:				

	Structural Kinesiology, students must earn a C or better in two biology lab courses, BIO-110 and BIO-240. Introduction of the new Personal Training certificate has shown encouraging numbers for enrollment, there was a significant increase in the number of students taking and successfully passing its set of core courses. The most recent fall term (2018) had the highest number yet, as 11 students enrolled and successfully completed the sequence. These courses also prepare students to take the national certification exam, so the program will monitor student progress in the department – do they leave for employment upon completing the certificate, or will they stay (or return) to complete the full degree? The significant increase can be interpreted as an immediate interest for those seeking to obtain employment as a fitness professional as soon as possible. The first course, HWM-147, also as run in a new 8-week format which may be attractive to students. As curriculum discussions focus on the current degree, considerations will be given towards revisions to balance the need for a strong science background with content that most relevant to the field and its objectives and learning outcomes. It is believed that the complexity of the 12 credits of content does not match the knowledge needed to be successful in the industry. Such revisions could positively impact the completion data. As of writing the report, faculty are aware of four students on track to graduate with the AAS in Spring 2019.
What disaggregated data was reviewed?	Institutional Research regularly provides enrollment and success data disaggregated by course modality and for early college credit students, such as tech prep and middle college. Within CTE programs specifically, IR provides program enrollment and completion statistics disaggregated by gender, age and race/ethnicity. Patterns for HWM will be addressed in items below.
Were there gaps in the data? Please explain.	Gap analysis has not been performed for students in Health and Wellness due in part to very small n-sizes.
What is the college doing to overcome any identifiable gaps?	ECC is a Leader College within Achieving the Dream. Under this membership, the *Student Success Infrastructure* coordinates data analysis and new initiatives from an equity mindset. Many projects will address all students, but others are focused on specific populations. Across the college, faculty are very interested in learning more about existing achievement gaps and

	discussing strategies to close them. Generally, these discussions consider student support services and college policies, but where needed will veer into the classroom. Within the HWM program it has been noted that most of the at-risk students were either English language learners or those with attention deficit disorders. If identified, or upon request from the student, material was covered with emphasis placed on areas of high importance, questions were encouraged, and review sessions were offered. Students that needed it were given extra time for tests or allowed to take exams in a private space to eliminate distractions. Course syllabi contain information of the different support services the school provides, and referrals are made to the Retention Specialist when needed.
Are the students served in this program representative of the total student population? Please explain.	The program skews slightly male by a few students, though given the small size, fluctuation are expected, and this pattern was reversed in 2013 and 2015. White students are the largest group (56% in 2018), with the next largest being Latino, a group which has grown since five years ago. This compares to a 2018 student population of 40% white and 42% Latino in 2018. African-American students approximate the college average of just under 10%. Proportions by age are very similar, with three-quarters of students under the age of 30, and 60% under the age of 23. This youngest group is slightly higher than the college overall.
Are the students served in this program representative of the district population? Please explain.	With the imbalance in race/ethnicity noted above as compared to the college's population, the HWM enrollment better reflects the district's mix of 60% white and 26% Latino.
REVIEW RESULTS	
Action	☒ Continued with Minor Improvements ☐Significantly Modified ☐Placed on Inactive Status ☐Discontinued/Eliminated ☐Other (please specify)
Summary Rationale	Building upon the program review analysis, curricular discussions are upcoming regarding the program's current and potential degree and certificates and how revisions can

Please provide a brief rationale for the chosen action.	support the needs of the community in relation to the fitness industry as it continues to grow. This would include short-term stackable certificates with the option of an AAS degree.
Intended Action Steps What are the action steps resulting from this review? Please detail a timeline and/or dates for each step.	• Determine revisions for AAS HWM degree by SP20 – Program director, advisory committee and faculty • Submit proposal for advanced personal training certificate and revised group fitness professional to curriculum committee by FA20 – Program director and faculty • Market new and revised programs SP21 and SU21 – Marketing and program director • Launch of all revisions and offerings FA21 – program director
Resources Needed	None beyond the time and talent of the faculty, advisory committee, director and division administration.
Responsibility	Work will be led by the program director with assistance provided by HWM faculty.

Career & Technical Education

COLLEGE NAME:	Elgin Community College
FISCAL YEAR IN REVIEW:	FY2019

PROGRAM IDENTIFICATION INFORMATION

PROGRAM TITLE	*DEGREE OR CERT*	*TOTAL CREDIT HOURS*	*6-DIGIT CIP CODE*	*LIST ALL CERTIFICATE PROGRAMS THAT ARE STACKABLE WITHIN THE PARENT DEGREE*
Heating, Ventilation, Air Conditioning, and Refrigeration	**AAS**	**62.5**	**47.0201**	VS Sheet Metal Mechanics VS Light Commercial HVAC Service Tech BVS Residential HVAC Service Technician BVS Residential HVAC Systems VS HVAC Facilities Maintenance Tech BVS Refrigeration Service Technician

Address all fields in the template. If there are certificates and/or other stackable credentials within the program, please be sure to specify and sufficiently address all questions regarding each stackable credential.

Program Objectives What are the overarching objectives/goals of the program?	Upon completion, a student will be able to: • Apply safety procedures from governing agencies associated with the HVAC industry. • Test electrical circuits and components to determine their condition with the use of a multimeter. • Read and utilize electrical diagrams to troubleshoot, rewire, and install HVAC equipment. • Utilize the tools-of-the-trade to measure, cut, de-burr, bend, solder, and braze refrigeration line sets. • Draw blueprints and construct sheet metal ductwork for residential and light commercial systems. • Troubleshoot, maintain, and operate boilers and their controls. • Demonstrate technical proficiency in the use of recovery machines, vacuum pumps, refrigerant manifold gauges as it applies to residential and light commercial air conditioning systems. • Maintain maximum operating efficiency of heating and air conditioning systems by performing system analysis. • Explain the use of valves and accessories used in the commercial refrigeration industry.

	• Calculate the heat gain/loss and ventilation requirements of a structure.
To what extent are these objectives being achieved?	Students are completing the entry-level core curriculum and earning certificates that make them very employable. As the program evolves to train on new technology and emerging industry trends, they can have even more opportunity.
Past Program Review Action What action was reported last time the program was reviewed?	**Pursue program accreditation though HVAC Excellence. Meet with HVAC Excellence reps to map out the process.** • Progress reported: The program was not able to pursue accreditation due to time. The program focused on creating and implementing new certificates, scheduling changes, and completion pathways. **Evaluate current position, conduct needs assessment, set goals and move towards goal completion.** • Progress reported: The program needed to update its certificate offerings to align with industry – completed, goals were achieved. **Review with Curriculum to begin the process of restructuring certificate programming (stackable).** • Progress reported: The program removed certificates that were titled level I, level II, level III and now they are basic residential, residential, light commercial service tech, refrigeration service tech, facilities maintenance tech, and AAS in HVAC. This has resulted in significant increase in course enrollment over the first two semesters. **In collaboration with the ECS program, devise a plan to combine Energy Management as a specialization within the HVAC curriculum to consolidate enrollment and maximize program resources.** • Progress reported: The HVAC program has added several core ECS classes to the HVAC certificates increasing enrollment. **Develop industry partnerships that allow students the opportunity to receive third party professional certifications.**

	• Progress reported: The HVAC program has partnered with HVAC Excellence and National Association of Stationary Operating Engineers (NASOE) and students now may earn up to 7 third party certificates/licenses: 5 certificates and 1 license from HVAC Excellence and 2 licenses from NASOE. **Update lab technology.** • Progress reported: 20% of the installed equipment in the lab is the most current technology in the field, and includes furnaces, condensers, boilers, and thermostats. **Add new courses in Advanced Troubleshooting and a second level Gas Heating.** • Progress reported: The HVAC program has not added courses because the required credit hours for certificates and degrees are already high. The program needs to reevaluate required courses and determine if courses need to be updated, removed, or redesigned. **Explore feasibility of Direct Digital Controls (DDC) lab.** • Progress reported: The cost and availability of space in the labs have prevented the installation of a functional DDC controls lab. The program will continue to search for a donor if possible. **Additional accomplishments since FY14 (not related to FY14 goals):** As a result of a grant, ICAPS has now become an opt-out program, increasing the number of students who complete certificates.

CTE PROGRAM REVIEW ANALYSIS Complete the following fields and provide concise information where applicable. Please do not insert full data sets but summarize the data to completely answer the questions. Concise tables displaying this data may be attached. The review will be sent back if any of the below fields are left empty or inadequate information is provided.	
List all pre-requisites for this program (courses, placement scores, etc.).	The general education components of the AAS degree carry college readiness pre-requisites in reading, writing and math based on placement tests or successful completion of prior developmental coursework, otherwise there are no program prerequisites for the HVAC program.

Please list or attach all required courses (including titles) for completion of this program including institution required courses (e.g. student success, first year, general education requirements, etc.).	This program's current catalog information can be accessed here: www.elgin.edu/HVAC
Provide a rational for content/credit hours beyond 30 hours for a certificate or 60 hours for a degree.	AAS: 62.5 credits VS Sheet Metal: 34 credits VS Light Commercial: 38.5 credits VS HVAC Facilities Maintenance: 46.5 credits The rationale for exceeding 30 credits is due to the level of knowledge needed for gainful employment in the areas of light commercial and commercial HVAC.
INDICATOR 1: NEED	***RESPONSE***
1.1 What the labor market demand for the program is?	The need is high for HVAC-R installers, service technicians, and Sheet Metal workers. Entry level service technicians earn approximately $40,000 - $50,000.
1.2 How has demand changed in the past five years and what is the outlook for the next five years?	The demand over the last 5 years has been the same and the trend continues. The need is projected to grow 9% - 20% over the next 5 years. Sheet metal unions are now incorporating HVAC service in the unions.
1.3 What labor market information sources are utilized?	Programs rely on internal resources prepared by Institutional Research and the Perkins Grant Administrator as well as their own research. Sources include EMSI, IDES, BLS and ONet.
1.4 How does the institution/program ensure that there is a sufficient pipeline or enrollment of students to fulfill the labor market need? (i.e. how/where are students recruited for this program?)	The program attends high school CTE career days, though a better job can be done recruiting high school students. There is opportunity to partner with Academic Advising to assist students in selecting courses for career choices.
1.5 Did the review of program need result in actions or modifications? Please explain.	The program has been redesigned in order to meet the demand. There are clear entry and exit points, course sequencing has been addressed and new curriculum is being added. In order to be more effective, the program needs room to grow. It currently does not offer installations

	courses because there is not the room or means to accomplish them. The department has a history of not being able to find adjunct faculty. At the moment this is the greatest need to support program growth. The program has also identified the need to seek guidance from the advisory committee regarding the sheet metal certificate to determine if it is still relevant and conducive for apprenticeships provided by local unions.
INDICATOR 2: ***COST EFFECTIVENESS***	***RESPONSE***
2.1 How does the institution assess cost-effectiveness for CTE programming? Consider: • What are the costs to the institution associated with this program? • How do costs compare to other similar programs on campus? How is the college paying for this program and its costs (e.g. grants, etc.)?	Perkins grant and education funds are used for program costs, which include purchasing supplies for students and maintaining equipment. These equipment costs are high but similar to other trade programs. The increased enrollment has driven up the operating cost of the program.
2.2 If most of the costs are offset by grant funding, is there a sustainability plan in place in the absence of an outside funding source? Please explain.	N/A
2.3 What are ways that the college will be increasing the cost-effectiveness of this program?	Cost of supplies have been increasing over the past five years and equipment breaks frequently as a result of student use. The largest challenges are maintaining the equipment running in the labs for students to use. The program has removed all unnecessary /unused equipment, it has streamlined the labs, and purchases more “universal” components instead of OEM. The sheet metal class projects have been “tweaked” to minimize sheet metal waste. Faculty have also built additional trainers to minimize the waste of black pipe. In order to be more effective, the program needs room to grow.

2.4 Did the review of program cost result in any actions or modifications? Please explain.	The HVAC program needs space to grow, it needs mini split systems, and a direct digital controls (DDC) lab. It also needs a space for installations and possibly light commercial / new construction of sheet metal. The program will need additional funding in order to achieve the goals that have been set in place.
INDICATOR 3: QUALITY	***RESPONSE***
3.1 What are the program's strengths?	The program's labs are arguably the best in the state. Students have many opportunities to hone their hands-on skills. As a result of the faculty, the program has strong employer relationships which gets students employed quickly. The program also offers tutoring to all courses in building O close to the classrooms. Students in the program have won the SkillsUSA state competition and the National competition in sheet metal.
3.2 What are the identified or potential weaknesses of the program?	Identified weaknesses: not enough faculty; the cost of maintaining equipment; and, the lack of vendors that the program is allowed to use prohibits students from working on several equipment manufacturers. The program needs to seek guidance from advisory committee to determine the currency of the sheet metal certificate.
3.3 What are the delivery methods of this program? (e.g. traditional format/online/hybrid/team-teaching etc.)? How does the program compare success rates of each delivery system?	All courses are delivered in the face-to-face format. Sections are run with an 8-week back-to-back model which works very well. Most faculty in the department utilize D2L, YouTube, and other online media to support classroom and lab instruction.
3.4 How does this program fit into a career pathway?	This program directly prepares students for careers in the industry with certificates, an AAS degree, and a path to Bachelor's degrees.
3.5 What innovations have been implemented or brought to this program that other colleges would want to learn about?	Keeping up with innovation within the industry, the use of WiFi-based components is a major innovation for the program. Courses instruct students how to install, troubleshoot, and setup the equipment, such as NEST thermostats.
3.6 Are there dual credit opportunities? If so please list	Yes, the HVAC program has dual credit opportunities for students enrolled in HAC-101, 114, 103, and 109. The associate schools are districts U-46, 300, 301 and

offerings and the associated high schools.	303. However, enrollment in Tech prep students has significantly declined since the last program review. The program no longer has articulation agreements with the high schools, but conversations continue regarding other early college credit opportunities.
3.7 What work-based learning opportunities are available and integrated into the curriculum?	Students are encouraged to participate in summer internship programs as well as "ride-alongs" with HVAC companies. Students have completed internships with the City of Elgin and MSI Heating, Inc.
3.8 Is industry accreditation required for this program (e.g. nursing)? If so, identify the accrediting body. Please also list if the college has chosen to voluntarily seek accreditation (e.g. automotive technology, NATEF).	Accreditation is not required for the program but accreditation with HVAC excellence may be pursued within the next 5 years. The boiler courses in the program are accredited by the National Association of Stationary Operating Engineers (NASOE). The program was just certified to offer chiller operations.
3.9 Are industry-recognized credentials offered? If so, please list.	The NASOE accreditation allows students to earn a 2nd class low pressure boiler operator license and a 3rd class stationary high-pressure steam engineer license. Students also have the opportunity to earn 3rd party credentials from HVAC Excellence and the North American Technician Excellence (NATE). Additionally, students may earn certificates from the International Mechanical Code and can earn industry-recognized credentials from HVAC Excellence in electricity, electric heat, gas heat, air conditioning, light commercial air conditioning, light commercial refrigeration, heat pumps, system diagnostics & troubleshooting, basic refrigeration and charging procedures and their EPA license.
3.10 Is this an apprenticeship program? If so, please elaborate.	N/A
3.11 If applicable, please list the licensure examination pass rate.	The industry requires that all students earn their EPA license before employment. The program does not have access to pass rates.
3.12 What current articulation or cooperative agreements/initiatives are in place for this program?	There are currently no articulation agreements in place, though students who earn an AAS in HAC may transfer to 4 year schools.

3.13 Have partnerships been formed since the last review that may increase the quality of the program and its courses? If so, with whom?	More companies have shown interest in first-semester completers over the past 5 years. The program has stronger interdepartmental collaborations with the IST and ECS programs.
3.14 What professional development or training is offered to adjunct and full time faculty that may increase the quality of this program?	There are plentiful and various professional development opportunities for faculty at the college. The faculty contract allows for professional development funds, and includes part-time faculty. The college also offers in-house training on various subjects. The program and faculty belong to HVAC Excellence, NASOE, and the International Code Council (ICC). As a result, students can earn 3rd party certifications or licenses that are field recognized. Faculty have attended the HVAC Excellence conference, the week-long Manitowoc ice machine training sessions, and week-long Amatrol training sessions. Faculty are interested in additional topics such as mini split system training, solar panel installation and troubleshooting training, and other renewable energy courses. The organizations have student chapters that students may join at a discounted rate. The program informs and encourages students to be members and attend conferences.
3.15 What is the status of the current technology and equipment used for this program?	The HVAC program is maintaining with the technology in the industry and courses have been updated in the classroom to include emerging trends/technology. The advisory committee and industry have requested updates to the lab equipment, which was accomplished by removing all standing pilot technology furnaces. The program needs to purchase mini split systems to address the growing needs in our industry. The program needs more space in order to grow in this fashion.
3.16 What assessment methods are used to ensure student success?	The courses are designed with an emphasis on lab work. This is the priority for student success. The faculty ensure to teach similar/same curriculum to include assessment tools; however, faculty are not

	fully aware of the assessment process and have never been taught to do it. This can be addressed through professional development offered through the college. The program makes students aware of resources available to them and also utilizes the Spartan Alert program.
3.17 How satisfied are students with their preparation for employment?	Overall, the majority of students were very satisfied with their preparation for employment.
3.18 How is student satisfaction information collected?	Despite ICCB rescinding the requirement for the CT Follow-up Survey, the college's Institutional Research department continues to execute this survey protocol one year after certificate or degree completion. In addition, all completers are surveyed *each year*, not just prior to the review, so a full five years of responses can be studied.
3.19 How are employers engaged in this program? (e.g. curriculum design, review, placement, work-based learning opportunities)	Employers are asked to provide feedback on curriculum design, lab equipment needs, assessment tools, etc. The program is the in process of revamping its advisory committee, which is essential in guiding the program direction and lab equipment needs. Other topics include how current curriculum relates to the industry, the validity of required courses for the certificate, how to improve equipment and assessment in the labs, and how to increase program completion. The department has paid particular attention to the courses that are recommended by industry and has placed the courses within the first three certificates to increase student success rates.
3.20 How often does the program advisory committee meet?	The goal is to meet annually, The HVAC and ECS programs need to have a more robust advisory committee. Attendance/participation have been issues in the past. Increased obligations have caused some members to have to step down. The programs will consider merging both advisory committees since they are similar.
3.21 How satisfied are employers in the preparation of the program's graduates?	All of the feedback that employers have provided the program shows that they are very satisfied with the quality of technicians they receive. More companies have shown interest in the first semester certificate graduates over the past five years.

	All employers would like their students to have better soft skills and safety training. The advisory committee and industry have requested that equipment be updated in the labs.
3.22 How is employer satisfaction information collected?	The program does its best to maintain relationships with employers in the industry. Satisfaction is gleaned through the advisory committee and the local employers contacting the program to hire graduates.
3.23 Did the review of program quality result in any actions or modifications? Please explain.	Faculty assess and modify courses as indicated by industry. In some courses the objectives had to be modified in order to meet industry needs. In others, the objectives had to be removed all together. The program is considering at least one new course for chillers and would align with the Facilities Maintenance certification and with NASOE's Chiller operator license. In addition, the HVAC/ECS program has a need for a full-time faculty member. It is becoming increasingly difficult to find adjuncts in the mornings which makes it difficult to offer morning sections.

DATA ANALYSIS FOR CTE PROGRAM REVIEW

Please complete for each program reviewed. Colleges may report aggregated data from the parent program or report on enrollment and completion data individually for each certificate within the program. Provide the most recent 5 year longitudinal data available.

CTE PROGRAM	**Heating, Ventilation, Air Conditioning, and Refrigeration**				
CIP CODE	**47.0201**				
	FY2014	*FY2015*	*FY2016*	*FY2017*	*FY2018*
*NUMBER OF STUDENTS ENROLLED (*SU/SR DUPLICATED SEATCOUNT ENROLLMENT for ALL HWM COURSES)*	733	647	556	410	503
COMPLETIONS					
AAS – HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION	9	6	4	4	10
VS – Light Commercial	14	1	11	5	0
VS – SHEET METAL MECHANICS	0	0	0	0	0
BVS- RESIDENTIAL HVAC SERVICE TECHNICIAN	44	24	33	18	4
BVS-RESIDENTIAL HVAC SYSTEMS	48	40	34	19	60

VS – FACILITIES MAINTENANCE TECH	(New Certificate)				2
BVS – REFRIGERATION SERVICE TECHNICIAN	(New Certificate)				1
OTHER (PLEASE IDENTIFY) **OVERALL COURSE SUCCESS (A-C) RATES, excluding withdrawals*	95%	93%	96%	95%	91%
OTHER (PLEASE IDENTIFY)	Program also receives course-level enrollment and success data as part of their Quality review.				
How does the data support the program goals? Elaborate.	Program enrollment has been declining since 2014, but saw an uptick for 2018. There is a challenge in the higher-level courses as students gain employment early after the core curriculum and do not return to complete. Enrollment has been positively affected after adopting the 8-week model. The program feels that enrollment will increase slightly over the next five years as it continues to address pitfalls in the program and add additional curriculum. Courses with the highest retention rates are the fundamental courses that students take within their first 2 semesters at ECC. The lower retention rates are those courses that are needed for higher level certificates and degrees. Since 2014 completion rates have dropped and that is due to employers hiring students with just the BVS Level 1 certificate. However, completion rates have increased again since 2017. In the HVAC program, the students are completing in an acceptable time frame. As discussed above, the more advanced sheet metal courses have not been scheduled in years, resulting in no completions of that certificate. The program will seek guidance from the Advisory Committee on how it can serve related unions and employers.				
What disaggregated data was reviewed?	Institutional Research regularly provides enrollment and success data disaggregated for course modality and for early college credit students, such as tech prep and middle college. Within CTE programs specifically, IR provides statistics for program enrollment and completion disaggregated by gender, age and race/ethnicity. Patterns for HAC will be addressed in items below.				

<table>
<tr><td>Were there gaps in the data? Please explain.</td><td>For the most part women and underrepresented race/ethnicity groups are completing at levels very similar to their enrollment. There might be a pattern to watch for younger students (under age 30), which do not complete in as high of numbers as their enrollment; older students seem more likely to complete.</td></tr>
<tr><td>What is the college doing to overcome any identifiable gaps?</td><td>ECC is a Leader College within Achieving the Dream. Under this membership, the Student Success Infrastructure coordinates data analysis and new initiatives from an equity mindset. Many projects will address all students, but others are focused on specific populations. Across the college, faculty are very interested in learning more about existing achievement gaps and discussing strategies to close them. Generally, these discussions consider student support services and college policies, but where needed will veer into the classroom.</td></tr>
<tr><td>Are the students served in this program representative of the total student population? Please explain.</td><td>Not unexpectedly, women make up a very small proportion of HAC enrollment, hitting a high of 4% in 2018. The race/ethnicity breakdowns closely approximate the distribution of ECC students. The program enrolls fewer traditional age students – 38% in 2018 were 17-22 compared to 54% college-wide.</td></tr>
<tr><td>Are the students served in this program representative of the district population? Please explain.</td><td>The program has higher representation of Latino students and fewer white students than the full district population:
<table>
<tr><td></td><td>Program</td><td>ECC</td><td>D509</td></tr>
<tr><td>Latino</td><td>46%</td><td>42%</td><td>26%</td></tr>
<tr><td>White</td><td>44%</td><td>40%</td><td>61%</td></tr>
</table>
</td></tr>
<tr><td colspan="2">REVIEW RESULTS</td></tr>
<tr><td>Action</td><td>☒ Continued with Minor Improvements
☐ Significantly Modified
☐ Placed on Inactive Status
☐Discontinued/Eliminated
☐ Other (please specify)</td></tr>
<tr><td>Summary Rationale</td><td>The HVAC program is in good standing and certificate completion is high as students find work. The program</td></tr>
</table>

Please provide a brief rationale for the chosen action.	must stay aligned with industry trends and emerging technologies so it will continue to evaluate and make minor changes over the next five years. The department will also look at the feasibility of adding an installations curriculum and will continually evaluate how the most recent redesign is working for students. Lastly, the program has to ensure that equipment in the lab is up-to-date in order to accomplish set goals.
Intended Action Steps What are the action steps resulting from this review? Please detail a timeline and/or dates for each step.	• Address prereqs for courses (FA19 – SP21) • Address refrigeration certificate (FA19 – SP20) • Update course outlines via CurricUNET to reflect technology changes made in the classroom (FA19 – SP21) • Monitor refrigeration certificate and if minimal completion rates, then revamp to address need. (FA19) • Faculty need exposure and training with the college's formal course assessment process, and then will make a plan for participation. (FA19 – SP20) • Seek input from advisory committee regarding the need for a sheet metal certificate (FA19-SP20) ***Over the next five years*** • Add new curriculum for chiller operator (FA20 – SP21) • Address the building maintenance certificate to reflect chiller operator license (FA20) • Work with administration to find more room for installation curriculum (FA19 – FA24) • Improve working relationships with industry partners (FA19 – FA24) • Work with administration to assist in recruiting high school graduates (FA19 – FA24) **RESOURCES:** The HVAC program needs more room to grow. Additional funding, space and one full-time faculty will be needed to accomplish the set goals.

Career & Technical Education				
College Name:	Elgin Community College			
Fiscal Year in Review:	FY2019			
Program Identification Information				
Program Title	*Degree or Cert*	*Total Credit Hours*	*6-Digit CIP Code*	*List All certificate programs that are stackable within the parent degree*
Histotechnology	**AAS**	**60**	**51.1008**	VS-Histotechnology
Address all fields in the template. If there are certificates and/or other stackable credentials within the program, please be sure to specify and sufficiently address all questions regarding each stackable credential.				
Program Objectives What are the overarching objectives/goals of the program?	Upon completion of the Histotechnology program, students will be able to: • Demonstrate basic knowledge necessary to obtain a passing score on the American Society of Clinical Pathology (ASCP) national certification exam. • Process specimens independently. • Apply test/theory principles in the performance of diagnostic procedures. • Follow established laboratory safety policies. • Organize and prioritize tasks appropriately. • Initiate measures to correct technical problems. • Maintain quality performance under stress. • Convey written and verbal information to others in a timely manner. • Follow written and verbal instructions accurately. • Use technology to operate equipment and manage information. • Develop a sense of responsibility to the patient and the employer • Treat co-workers with respect. • Maintain professionalism in appearance and conduct. • Remain adaptable to changes that occur in the profession. • Grow intellectually through continuing education.			
To what extent are these objectives being achieved?	The program's graduates are highly employable, which indicates successful achievement of these outcomes. Students must demonstrate a certain level of skill mastery within timed parameters prior to advancing to clinical			

	rotations. Deficiencies are typically remediated at this stage with additional practice. Some feedback has been received regarding professionalism, so the importance of the topic is being addressed as an important area of development.
Past Program Review Action What action was reported last time the program was reviewed?	**Add technology especially in the special stains area. Scan slides are embedded in D2L, so students can practice at home.** Progress reported: The program director looked into this option, however the equipment that is used is not capable of processing slides to embed into D2L. That is, in order to do this it would take many hours, and the quality of the slides would not be of academic value. There are many resources available on the internet that can be utilized instead. **Continue to work on adding an Immunohistochemistry workshop for current and former students, as well as other practicing Histotechnicians.** Progress reported: The instructor that was originally interested in providing this instruction has not followed through on this workshop. The program director will discuss further with the instructor and follow up accordingly. **Add additional clinical sites, potentially local dermatology labs.** Progress reported: The program director has added a local dermatology lab, and has added three or more additional clinical sites. The program continues to admit students from a wide demographic area. **Health professions departments and biology classes to provide insight into the professions.** Progress reported: The program has done a few presentations to biology classes, and has been active in recruitment from local high schools. **Explore the development of an online program to help fill the shortage of Histotechnicians throughout the nation.** Progress reported: No progress. **Continue to assess and add technology to the program.** Progress reported: Some new technology has been added with the addition of a large monitor that is shared between Clinical Lab and Histotechnology.

	Add new equipment as needed. Progress reported: The program received a donation of a new Auto-tome for students to utilize in lab. This was a generous donation from Sakura Co., and ECC was one of three colleges in the nation to receive this gift. **Expand the program, if there is a need in the surrounding area** Progress reported: At this time, the program is the right size based on instructional capabilities and balancing the number of graduates with what the job market can absorb. **Additional accomplishments since FY16 (not related to FY16 goals):** The program has increased communication between the instructors in the embedding and cutting courses. Typically, students have a different instructor weekly (four instructors rotate), and in order to keep everyone on the same page, the program has started "Histo-notes". It is the responsibility of the instructor that week to send an e-mail to all instructors, and the program director. It has been a great tool for the instructors so they are aware of any issues that come up in class. There seems to be a better transition from week to week, which is meant to ultimately help the students.

CTE PROGRAM REVIEW ANALYSIS Complete the following fields and provide concise information where applicable. Please do not insert full data sets but summarize the data to completely answer the questions. Concise tables displaying this data may be attached. The review will be sent back if any of the below fields are left empty or inadequate information is provided.	
List all pre-requisites for this program (courses, placement scores, etc.).	The Histotechnology degree program and Vocational Certificate for those who have already earned a degree have the following entrance requirements: • Score in the 25th percentile or better in each section of the PSB-HOA exam • Grade of C or better in BIO 110 Principles of Biology or equivalent • Grade of C or better in MTH 097 Plane Geometry or equivalent or grades of C or better in two semesters of high school geometry or appropriate score on the geometry placement test

	• Grade of C or better in MTH 098 Intermediate Algebra or equivalent or appropriate score on the algebra placement test Students must complete all required courses with grades of C or better to be eligible to sit for the histotechnician certification exam offered by the American Society of Clinical Pathology (ASCP). Prior credits in biology, chemistry, or mathematics must have been earned within the last 10 years. Students must provide their own uniform and transportation to and from all clinical sites. Admission preference is given to candidates who are legal residents of Community College District 509, Elgin Community College. Working in district does not meet this requirement. Qualified applicants from other districts may be considered if space is available. The standards, policies, and procedures of the histotechnology program are published in the histotechnology student handbook. Copies of the student handbook may be obtained online at elgin.edu/histotechnology.
Please list or attach all required courses (including titles) for completion of this program including institution required courses (e.g. student success, first year, general education requirements, etc.).	This program's current catalog information can be accessed online at elgin.edu/histotechnology.
Provide a rational for content/credit hours beyond 30 hours for a certificate or 60 hours for a degree.	Both the degree and the certificate may exceed the standard hours by three credits depending on the student's chosen sequence of Anatomy and Physiology, either completing the requirement in one semester for 5 credits, or over two semesters for 8 credits. The two semester sequence are transferrable courses, so they may be a more attractive option for students who may continue their education.
INDICATOR 1: NEED	***RESPONSE***
1.1 What the labor market demand for the program is?	Students in this program are working to become histotechnicians and histotechnologists. With additional education they can become pathology assistants. Graduates can expect to make approximately $25 an hour/$52,000 annually to start the local area, with additional shift differentials often available for working night shifts.

	Graduates are pleased to find that jobs are readily available. Program data shows that all who were seeking employment, found a job within 6 months.
1.2 How has demand changed in the past five years and what is the outlook for the next five years?	Aside from a hospital program in Peoria which admits 2 students, ECC is the only histotechnology program in the state and expects applications to exceed capacity over the next five years. The field is growing at a rate of 13 % higher than the job market, through 2026. Histology is continuing to become more complex with additional technologies being employed, which necessitates a strong educational program with clinical components. Additionally, more dermatology centers opening to address the rise in skin cancer, which creates an additional type of employment site for histotechnicians.
1.3 What labor market information sources are utilized?	Programs rely on internal resources prepared by Institutional Research and the Perkins Grant Administrator as well as their own research. Sources include EMSI, IDES and BLS.
1.4 How does the institution/program ensure that there is a sufficient pipeline or enrollment of students to fulfill the labor market need? (i.e. how/where are students recruited for this program?)	The program is competitive admission, bringing in 15 students for each cohort. The program fills each year, with a few students being pulled up from the wait list. Growth is somewhat limited by the strict need for clinical site placement. As also is the case with the Clinical Lab program, there is opportunity to inform potential students about this specific career path – those in health professions, but "behind the scenes." The director attends high school career fairs, visits various science courses within ECC, and the program is included on the tours of health professions options to students enrolled in the medical terminology course. Many HST students arrive to the program with bachelor's degrees in the sciences already, but without specific skill sets. It is for these students that the VS certificate has the most value to obtain marketable skills. Most of the program's completers already have a degree and earn the VS.
1.5 Did the review of program need result in actions or modifications? Please explain.	While the labor market could support it, the program is not increasing the cohort capacity given the low number of clinical sites available. Additionally, due to hospital consolidation of services, some of our sites are no longer available. The program continues to seek additional clinical sites for student learning.

INDICATOR 2: COST EFFECTIVENESS	***RESPONSE***
2.1 How does the institution assess cost-effectiveness for CTE programming? Consider: • What are the costs to the institution associated with this program? • How do costs compare to other similar programs on campus? How is the college paying for this program and its costs (e.g. grants, etc.)?	The costs associated with the Histotechnology program include: faculty salaries, maintenance services, instructional and office supplies, printing, publications and dues, computer software, conference and meeting expenses, and accreditation fees. These costs are comparable to other programs on campus that utilize equipment and supplies heavily. This program is supported through the Education fund and generates a small profit each year.
2.2 If most of the costs are offset by grant funding, is there a sustainability plan in place in the absence of an outside funding source? Please explain.	N/A
2.3 What are ways that the college will be increasing the cost-effectiveness of this program?	The program director has secured multiple equipment and supply donations from vendors and clinical partners which has helped keep the costs down. Vendors are happy to partner with ECC because the college is the largest Histotechnology training program in Illinois. Thanks to a strong relationship with one vendor in particular, the program has received speakers as well as a significantly reduced the price for equipment maintenance (specifically the student microtomes). An instructional change has significantly cut back on the use of expensive "special stains" by having students work in groups to do more sharing of the supplies. The program recently lost an instructor; however, for now the others have stepped in to take on more responsibilities. The director will keep a close eye on this to determine if a replacement should be added.
2.4 Did the review of program cost result in any actions or modifications? Please explain.	Shortly, the program will be in need of a tissue processor. This is an expensive piece of equipment that should last for a long time, and there are refurbished pieces that would be best for the program and will be investigated. Also within the next five years, some of the student microtomes may need to be replaced, and perhaps an embedding center will

	be needed. Keeping equipment well maintained is of utmost importance.
INDICATOR 3: QUALITY	***RESPONSE***
3.1 What are the program's strengths?	The program is fortunate to have a lot of technical expertise amongst the instructors. They are histotechnologists working in the field, and are also managers of sites taking students for their practical experience. Not only do they know these students in a personal way, they are teaching them their craft. Since the instructors work in the lab, they have access to a wide variety of tissues that the students can utilize on campus. The space is well designed for learning and working and has well-maintained equipment, such as the unique Auto-tome received as a donation. The program maintains high expectations of the students. Prior to going to the clinical rotation, students must demonstrate they can cut a pre-determined number and quality of tissue blocks. Typically, when they are off the mark, it is due to lack of practice. Much like homework, students are expected to come in each week and practice with another classmate to prepare for this assessment.
3.2 What are the identified or potential weaknesses of the program?	Instructors who teach campus labs rotate every third or fourth week. There has been some issues with communication, class topics/tissues, and consistency with feedback and grading. A home-grown system called "Histo-notes" is attempting to streamline all of this information to help the faculty and the students. For example, whomever teaches the Embedding & Cutting class on Saturday is tasked with sending out a classroom reflection on Monday to the program director and the other instructors. This way everyone is on the same page with what was taught, also, if there were any issues or problems. The program is also in the process of re-working course assignments to help alleviate undue variation between faculty and delays in turning work back to students. As discussed elsewhere, and common across many Health Professions programs, there is a critical need to maintain numerous clinical site opportunities for students.
3.3 What are the delivery methods of this program? (e.g. traditional format/online/hybrid/team-teaching etc.)? How does the	The program is offered in a unique hybrid format where students are on campus for instruction for several weeks and then they are assigned to clinical rotations where they practice skills in the workplace. The D2L platform is utilized in all classes for activities such as quizzes, power-points,

program compare success rates of each delivery system?	and homework assignments. While out on clinical, students are expected to regularly post comments using the D2L discussion board. Because students are training at different sites, the instructor wants them to share their experiences with each other. The courses are taught in the evening and on Saturday mornings since all instructors are working histotechnologists. In the spring term there are two 8-week courses and clinical begins mid-March. Enrollment, success and retention data from Institutional Research is disaggregated by modality. Programs are also given college averages for face-to-face, hybrid, and online sections of transfer and career-technical programs for benchmarking.
3.4 How does this program fit into a career pathway?	A graduate of the Histotechnology program is able to sit for the ASCP (American Society of Clinical Pathology) certification exam and with an Associate's degree will become a histo*technician*. Upon one year of full-time experience in the Histopathology lab and after receiving a Baccalaureate degree that includes 30 sem. hours of biology and chemistry the graduate can sit for the HTL (Histo*technologist*) ASCP exam. In addition, some individuals desire to go on to attain a Pathology Assistant credential. This requires 22 months of coursework at Rosalind Franklin University.
3.5 What innovations have been implemented or brought to this program that other colleges would want to learn about?	Within the last five years the program has increased the variety of equipment available for student use. In addition, there is a more diverse group of instructors teaching in the program, and there are many more clinical partners than five years ago. The program has added a TV monitor that is shared between CLT & HST for the students to better visualize their slides as a class.
3.6 Are there dual credit opportunities? If so please list offerings and the associated high schools.	There are no dual credit arrangements for high school students to take the histotechnology courses, but interested students could begin completing the science requirements in biology or chemistry.
3.7 What work-based learning opportunities are available and integrated into the curriculum?	Students experience the workplace throughout the program during clinical rotations. Being in the clinical setting allows students to develop and showcase their skills with real-world scenarios, which is beneficial as they go through recruitment and hire opportunities. In some instances,

	students get jobs early as Histotechnology assistants while they progress through the program. It is this practical experience that makes a histotechnology grad more employable than someone with just a bachelor's degree and no experience.
3.8 Is industry accreditation required for this program (e.g. nursing)? If so, identify the accrediting body. Please also list if the college has chosen to voluntarily seek accreditation (e.g. automotive technology, NATEF).	The program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).
3.9 Are industry-recognized credentials offered? If so, please list.	Graduates of the program earning associate's degree are eligible to sit for the HT certification exam offered by the American Society of Clinical Pathology. Graduates who already have a bachelor's degree and earn the VS certificate can sit for the HTL certification exam.
3.10 Is this an apprenticeship program? If so, please elaborate.	N/A
3.11 If applicable, please list the licensure examination pass rate.	Typically, the graduates are expected to sit for their certification exam within a year of completing the program. According to the pass rate data, students that wait more than one year to take the ASCP exam are usually not as successful as those that take it within a year of graduating. **HT exam:** 2018 – 84% pass rate (1 student failing was from 2016 class) 2015- 2017= 100% pass rate **HTL exam:** 2018= 100% 2017= 100% 2016= 50% (1 student failing was from 2014 class) 2015= 100%
3.12 What current articulation or cooperative agreements/initiatives are in place for this program?	After receiving certification from the ASCP exam, graduates wanting to continue their education can apply to Rosalind Franklin University's pathology assistant program, and/or continue on to become a pathologist through medical school. To date, the program knows of 5 graduates who have continued on to Rosalind Franklin.

3.13 Have partnerships been formed since the last review that may increase the quality of the program and its courses? If so, with whom?	The program has increased its number of clinical partners, which has helped to strengthen its visibility and the opportunities for students. One of the newest partners is a dermatology site which helps students to learn more about working with skin specimens. The geographical area has widened as well, with partnerships established with UIC and Mercy Hospitals in Chicago, as well as Palos Community Hospital in the southwest suburbs. As mentioned, Histotechnology along with Clinical Lab Technology have partnered with other science departments and the local high schools to educate students on health professions jobs that are "behind the scenes". Internally, the program recently worked with the college's new ADA director, who visited and made recommendations to assist a few students with disabilities to be successful in the program. Some changes were made in the classroom and lab for accessibility and safety such as mats to prevent slipping and a mobile cart for a student using crutches.
3.14 What professional development or training is offered to adjunct and full time faculty that may increase the quality of this program?	There are plentiful and various professional development opportunities for faculty at the college. The college offers in-house training on various subjects and the faculty contract allows for professional development funds, which includes part-time faculty. HST adjunct faculty generally do not take advantage of professional development on campus, as they all work full-time in addition to teaching at ECC. This is somewhat problematic, as the instructors are very knowledgeable about their content, but not about pedagogy. The Director and the faculty are interested in training on assessment, including writing objectives, test questions, and additional ways to engage students. All faculty are members of various professional associations, such as the National Society of Histotechnology and the Illinois Society of Histotechnology. Students are encouraged to become members, as the ISH offers scholarships and opportunities for students to network with professionals and even find leadership roles.
3.15 What is the status of the current technology and equipment used for this program?	The program has been a very fortunate recipient of some amazing donations, such as a brand new automated microtome valued at $30K. Many hospital labs do not have this equipment, so the students are very lucky to have exposure to this new technology.

	The program is also in the process of securing a donation of a "lightly used" tissue processor from a consolidating lab. This is a vital (and very expensive) piece of equipment that will save college budget thousands of dollars. In the next five years, there may be a need to replace some of the student microtomes, and perhaps an embedding center. Currently, the backup equipment is very old and not reliable. Otherwise, the equipment is in good shape so long as annual maintenance is performed.
3.16 What assessment methods are used to ensure student success?	In addition to scheduled class and lab time, students are expected to come in and practice with a partner for a minimum of 2 hours per week. Through this independent work, they learn to self-assess and provide feedback to others. As mentioned earlier, students have an embedding and cutting exam prior to placement into their clinical site. If they do not achieve the appropriate number of slides and blocks of diagnostic quality, they cannot begin clinical. The program participates regularly in the college's course assessment process. In Topics II (HST-113) students are asked to prepare a resume; 5 out of 13 students narrowly missed or fell below expectations. Knowing that some students really struggle with this assignment, staff from career services work with them and provide examples and feedback. The students get an opportunity to make suggested corrections prior to receiving a final grade and also benefit from having a more professional resume for securing employment. In Embedding and Cutting II (HST-123), students were not meeting expectations in demonstrating proper embedding of biopsies in molds. These poor results were attributed to not enough practice working with very small tissue pieces. The program revamped its practices and ensured that students got enough biopsy samples to work. The assessment data was used to demonstrate the necessity of continued practice in improving this skill set.
3.17 How satisfied are students with their preparation for employment?	Of the 20 responses from the CT survey over the past five years, the majority were satisfied with the program. Also, it is clear that they are finding jobs. Yet, there is always more to do in this area. The program invites former students to visit the class prior to clinical to discuss preparation and how it leads to success in the workplace.

3.18 How is student satisfaction information collected?	Despite ICCB rescinding the requirement for the CT Follow-up Survey, the college's Institutional Research department continues to execute this survey protocol one year after certificate or degree completion. In addition, all completers are surveyed *each year*, not just prior to the review, so a full five years of responses can be studied. To gather more specific and timely feedback, the program director will begin sending out a survey within six months of graduation to determine student satisfaction and employment information.
3.19 How are employers engaged in this program? (e.g. curriculum design, review, placement, work-based learning opportunities)	As discussed, the clinical sites are a core component of the program's training. Most of the clinical sites then become employers of the program's graduates. Their input is very important to the success of the program. The director does her best to resolve concerns quickly, such as with the professional behaviors of the students (i.e. timeliness, soft skills, teamwork), and trouble-shooting and problem-solving skills. Such topics are then incorporated into the classroom and clinical preparation where possible. For example, students are expected to be able to trouble shoot issues that arise with equipment. Instructors will simulate instrument malfunctions and help students work through the steps needed to take to repair them. Employers are also gracious enough to help arrange a job shadow for prospective students who want to learn more about the career path prior to applying.
3.20 How often does the program advisory committee meet?	The committee meets annually and is comprised of instructors, clinical sites and an occasional program graduate. All of the clinical instructors meet as a program twice per year to discuss student progress and curricular topics.
3.21 How satisfied are employers in the preparation of the program's graduates?	Employers are satisfied with the preparation of the program's graduates. This is evidenced by the growth in numbers of clinical sites and the number of job offers available to graduates. In particular, one long-standing advisory committee member described ECC's HST students as precise and diligent and has hired at least five graduates.
3.22 How is employer satisfaction information collected?	Like most CTE programs, HST strongly relies on employer feedback received during Advisory meetings. If necessary, formal survey feedback can be solicited in cooperation with

	Institutional Research. In addition, the program's clinical coordinator is in ongoing communication with the clinical sites.
3.23 Did the review of program quality result in any actions or modifications? Please explain.	In the next five years, the students will get more instruction on the Auto-tome. This is the future of the histology lab, especially if there is a shortage of Histotechnicians. Other topics include surveying former graduates on their program satisfaction, finding ways to attract advisory members to attend meetings, and inspiring faculty to attend professional development activities related to teaching and learning.

DATA ANALYSIS FOR CTE PROGRAM REVIEW

Please complete for each program reviewed. Colleges may report aggregated data from the parent program or report on enrollment and completion data individually for each certificate within the program. Provide the most recent 5 year longitudinal data available.

CTE PROGRAM	**Histotechnology**				
CIP CODE	**51.1008**				
	FY2014	FY2015	FY2016	FY2017	FY2018
NUMBER OF STUDENTS ENROLLED (*SU/SR DUPLICATED SEATCOUNT ENROLLMENT for ALL HWM COURSES)	87	95	91	88	92
COMPLETERS					
AAS- HISTOTECHNOLOGY	3	5	5	6	1
VS-HISTOTECHNOLOGY	13	12	7	8	7
OTHER (PLEASE IDENTIFY) *OVERALL COURSE SUCCESS (A-C) RATES, excluding withdrawals	98%	92%	100%	94%	92%
OTHER (PLEASE IDENTIFY)	Program also receives course-level enrollment and success data as part of their Quality review.				
How does the data support the program goals? Elaborate.	Overall, enrollment in the Histotechnology program has been stable, with little variation. A few years ago, the cohort size was increased from 14 to 15 as it seemed common that one student would drop, usually for personal reasons. Over the past few years, the waitlist has been consistently growing. Prior to the start of the program, care is taken to ensure applicants are aware of what the program entails before they begin. If they have not been exposed to the job setting, the program arranges a job shadow opportunity. Most of the students complete the program on time, within two semesters for those who already have a degree. There				

	are occasionally a few that may take a bit longer, but usually no more than one additional semester. The average student has already had significant college and perhaps even career experience, so they know how to "do school" and be successful. The strong job market is also a good motivator to do well and finish on time. It is rare that the program receives a student right out of high school.
What disaggregated data was reviewed?	Institutional Research regularly provides enrollment and success data disaggregated for course modality and for early college credit students, such as tech prep and middle college. Within CTE programs specifically, IR provides statistics for program enrollment and completion disaggregated by gender, age and race/ethnicity. Patterns for HST will be addressed in items below.
Were there gaps in the data? Please explain.	With the data available, it appears that various groups of students are completing the program in proportions similar to their enrollment, so there are not immediate achievement gaps of concern in Histotechnology.
What is the college doing to overcome any identifiable gaps?	ECC is a Leader College within Achieving the Dream. Under this membership, the *Student Success Infrastructure* coordinates data analysis and new initiatives from an equity mindset. Many projects will address all students, but others are focused on specific populations. Across the college, faculty are very interested in learning more about existing achievement gaps and discussing strategies to close them. Generally, these discussions consider student support services and college policies, but where needed will veer into the classroom.
Are the students served in this program representative of the total student population? Please explain.	The program skews female, though at varying levels each year ranging from 53% to 78%. HST students are slightly older, more likely to come from the ages 23 – 39 (approximately 70% of the cohorts for the past two years). The proportion of Latinx students in HST is lower than the college, and varies. There was a period high of 35% in 2017, but 0% in 2018. White students are generally over-represented, and Asian students make up a steady 13%-20% which exceeds their numbers in the college population, which was 7% in 2018.
Are the students served in this program representative of the district population? Please explain.	The race/ethnicity distribution of the district is different than for the college. HST has less Latinx students than the district and on average, more white students.

REVIEW RESULTS	
Action	☒ Continued with Minor Improvements ☐ Significantly Modified ☐Placed on Inactive Status ☐Discontinued/Eliminated ☐Other (please specify)
Summary Rationale Please provide a brief rationale for the chosen action.	Students have been overall successful in taking the certification exam, and are able to attain a job rather quickly upon graduation. Graduates need to be able to "think critically" and problem solve. The volume of specimens will continue to increase, and Histotechs will need to be able to efficiently multi-task, working faster and smarter. Graduates will need to be able to adapt to changing technology. Given these demands, the program will expect students to practice more than in the past to master their skills.
Intended Action Steps What are the action steps resulting from this review? Please detail a timeline and/or dates for each step.	• Program Director will begin to write self-study for Histotechnology program re-accreditation, FA19 • Self- study report is due to NAACLS (accrediting body), SP20 • Special Stains (HST-125) class is being revised, and will have new instruction. (SP20, Helen DiNardo & Sara Stevens) • Planning to add clinical site where students can observe autopsies, SP20, (pursuing contract with Cook County, where former student is now lab manager) • Develop & administer graduate survey, SP20 • NAACLS site visit, FA20
Resources:	The program has been able to keep up with technology, and the lab is in good shape. In the future, the program may need to add more Immunochemistry content. At this point it is not expected of the Histotechnician, though it is required at the next level, Histotechnologist, and appears on the certification exam. If the program continues to get more bachelor degreed students, more immunochemistry content maybe added to courses to support their preparation.

Career & Technical Education

College Name:	Elgin Community College
Fiscal Year in Review:	FY2019

Program Identification Information

Program Title	*Degree or Cert*	*Total Credit Hours*	*6-Digit CIP Code*	*List All certificate programs that are stackable within the parent degree*
Welding Fabrication Technology	**AAS**	**60**	**48.0508**	VS Welding BVS Welding BVS Arc Welding BVS MIG Welding

Address all fields in the template. If there are certificates and/or other stackable credentials within the program, please be sure to specify and sufficiently address all questions regarding each stackable credential.

Program Objectives What are the overarching objectives/goals of the program?	Depending on the level of training and certification, students completing the welding program will be able to: • Operate safety equipment, use safe work habits; recognize, assess and address unsafe working conditions. • Recognize, set-up, and operate hand and power tools common to the welding trade and fabrication industry, such as drills, clamps, grinders. • Identify metals using basic inspecting techniques (visual, scratch test, spark test). • Connect and adjust high pressure gas regulators to reach the desired flame configuration or desired psi/cfh. • Ignite torches or start power supplies and strike arcs by touching electrodes to metals being welded, completing the electrical circuits. • Select and install torches, torch tips, and filler rods according to the manufacturers specification chart for the thickness of metal being welded. • Lay-out, position, align and secure parts and assemblies using proper tools (squares, calipers, combination squares and rulers); clamp, hold, tack-weld, heatbend, grind components to obtain required configurations and position for welding. • Weld components in all positions.

	• Weld separately or in combination, using steel, aluminum, stainless steel, cast iron and other alloys. • Perform multiple pass welds with GMAW, SMAW, GTAW in all positions. • Examine weldments for defects and measure work pieces with straightedges or templates to ensure conformance with standards and specification. • Set-up and properly adjust gas metal arc welders, gas tungsten arc welders, shielded metal arc welders, plasma cutters and oxygen and acetylene systems. • Program and operate a CNC plasma cutting table. • Construct weldments from a welding blueprint using proper AWS welding symbols.
To what extent are these objectives being achieved?	As written above, the outcomes are being met. Some concepts are threaded within each course of the curriculum, others are specialized within a specific course. All students will master the outcomes upon completion of the degree. This report will discuss desired additions to the program, which will lead to more outcomes. One new course, OSHA-10 General Construction Safety, will be taken in the first semester. Further, Applied Welding Theory WEL-112 will move from semester 2 to semester 3 and Industrial Manufacturing Technology I IMT-103 will move from semester 3 to semester 2. This will help ensure students have completed Welding II prior to taking Applied Welding Theory (the sequence now has these taken concurrently). The program also hopes to create Applied Welding Metallurgy within the department for the fourth semester to replace IMT-212: Metallurgy – The Study of Steel, allowing for a more direct alignment outcomes specific to Welding.
Past Program Review Action What action was reported last time the program was reviewed?	**Develop demonstration videos as a resource for students.** <u>Progress reported:</u> Over two dozen videos have been made for WEL-120: Blueprint Reading for Welders and others are currently being made for WEL-221: Advanced Blueprint Reading for Welders. Other courses to follow.

	Consider options for assisting students with basic skills deficiencies, such as: introducing minimum competencies to the welding program; developing a basic math course; partnering with other college resource areas. Progress reported: Mathematics contextualized to welding and blueprint reading has been added to WEL-120 and WEL-221. **Replace dated welding power sources. Create equipment replacement plan for dated power sources** Progress reported: Several welding power sources have been purchased and implemented into the shop for daily use. These new machines allow for students to learn on the new equipment. **Replace Scotchman ironworker with a new Uni-Hydro.** Progress reported: The Uni-Hydro was purchased and put into work during the 2017-2018 school year. **Fill faculty vacancy from Spring 2014 retirement.** Progress reported: Position is still yet to be filled. We are having a difficult time finding qualified instructors to teach day sections. **Replace full-time welding instructor position after next anticipated retirement.** Progress reported: The full-time welding instructor position was replaced upon the retirement of one of the instructors starting in January of 2016. **Partner with Miller/Panasonic to develop and introduce robotic welding certificate program.** Progress reported: Unfortunately, this partnership did not move forward, even after the training to current instructor. Will plan to work on this moving forward. **Partner with local industries to develop internship opportunities.** Progress reported: There are internship opportunities currently available for welding students, yet few take advantage of them. **Collaborate with other college departments to address student work ethic development.**

	Progress reported: Continual collaboration with other schools in an ongoing process. Contact with local school such as, Joliet Junior College and also College of DuPage has been successful. Also, during the summer of 2018 contact with schools outside of Illinois occurred to collaborate on issues and successes. **Additional accomplishments since FY14 (not related to FY14 goals):** • Maintained steady enrollment past 5 years, • Successful 1st Annual High School Welding Competition spring 2018 • Rated #3 welding program in state of Illinois

CTE PROGRAM REVIEW ANALYSIS Complete the following fields and provide concise information where applicable. Please do not insert full data sets but summarize the data to completely answer the questions. Concise tables displaying this data may be attached. The review will be sent back if any of the below fields are left empty or inadequate information is provided.	
List all pre-requisites for this program (courses, placement scores, etc.).	The general education components of the AAS degree and VS certificate carry college readiness pre-requisites in reading, writing and math based on placement tests or successful completion of prior developmental coursework, otherwise there are no program prerequisites for the Welding program. Students are required to purchase all safety equipment and shop supplies as outlines by the instructors.
Please list or attach all required courses (including titles) for completion of this program including institution required courses (e.g. student success, first year, general education requirements, etc.).	This program's current catalog information can be accessed at www.elgin.edu/welding.
Provide a rational for content/credit hours beyond 30 hours for a certificate or 60 hours for a degree.	The VS Welding has 33 credits because it includes two components from General Education requirements (math and communications).
INDICATOR 1: NEED	***RESPONSE***
1.1 What the labor market demand for the program is?	Welders are needed for every commercial or industrial construction job. This includes the beams, pipes, and other structural components of bridges, buildings, and refineries. The economy is currently at a high point which means there are a lot of new builds

	and retrofitting taking place in the local area as well as throughout the U.S. which drives up the need for skilled welders. The American Welding Society states there are over 250,000 jobs in welding that are unfilled currently and that number will continue to grow with the upcoming retirements of the baby boomer generation. Schools cannot train *skilled* welder's quick enough. Jobs available to program completers include MIG assembly line welder, pipe fitter/pipe welder and fabricator, as well as adjacent trades such as electricians, iron workers (both ornamental and structural), carpenters, plumbers, sheet metal workers, steam fitters, boilermakers, and service technicians.
1.2 How has demand changed in the past five years and what is the outlook for the next five years?	Illinois Department of Employment Security Labor Market Information numbers have defined welders with a 3% increase in the local area. As for the nation, the increase has been more dramatic. There is high demand in growing cities and states. The program continually has employers reaching out to ECC for skilled welders. Additionally, the Pipe Fitters Training Center in Mokena has reached out for skilled welders.
1.3 What labor market information sources are utilized?	Programs rely on internal resources prepared by Institutional Research and the Perkins Grant Administrator as well as their own research. Sources include EMSI, IDES, BLS and ONet.
1.4 How does the institution/program ensure that there is a sufficient pipeline or enrollment of students to fulfill the labor market need? (i.e. how/where are students recruited for this program?)	The program is taking steps to inform young men and women about the welding industry and the great paying jobs available. Further, additional recruitment efforts are focused in the ICAPS and Tech Prep (dual credit) programs which will increase enrollment and ultimately, put more individuals to work in the welding industry. ICAPS and tech-prep are successful programs, but many potential students are still unaware of these opportunities. Further, there are recruitment opportunities such as *Explore* through U-46 school district that the welding department was not invited to while all other CTE programs were included.

	The two full-time instructors like to attend as many career days at the high schools a possible. Further, they visit with welding classes being offered at the feeder schools to let them know about the program. ECC's program has also introduced an annual high school welding competition (sponsored through donations) that supports these young welders and provides them exposure to and experience with the college's facility. The college also recently hosted the first Regional SkillsUSA competition.
1.5 Did the review of program need result in actions or modifications? Please explain.	There is great demand for skilled pipe welders and the statistics are staggering. The program needs to act on this data and create/implement courses to offer a comprehensive pipe welding and fabrication credentials to fill this need. New coursework would include: Pipe stick basic and advanced, pipe TIG basic and advanced, and pipe MIG/FCAW, Applied Welding Metallurgy, and OSHA-10.
INDICATOR 2: COST EFFECTIVENESS	***RESPONSE***
2.1 How does the institution assess cost-effectiveness for CTE programming? Consider: • What are the costs to the institution associated with this program? • How do costs compare to other similar programs on campus? How is the college paying for this program and its costs (e.g. grants, etc.)?	Costs associated with this program include faculty, staff, and instructional materials. Materials in particular have increased over the past academic year due to geopolitical forces. The increased costs in instructional materials is consistent with other manufacturing-related programs where raw materials like steel and aluminum are required for instruction. Otherwise, costs are fairly consistent with other programs. The WEL program is funded through a combination of Ed Funds and Perkins Grant.
2.2 If most of the costs are offset by grant funding, is there a sustainability plan in place in the absence of an outside funding source? Please explain.	Most of the costs for this program come from Ed Funds, with supplemental funding from Perkins where appropriate.
2.3 What are ways that the college will be increasing the cost-effectiveness of this program?	There have been several steps to lower costs of operating the welding program. Efforts have been made to require the students to reuse, recycle, and reduce the amount of gas, filler material, and base metal consumables they use. The program survives solely due to the volume of donations from local companies. Through the strong relationships that

	have been developed over the years, ECC saves tens of thousands of dollars, if not, hundreds of thousands of dollars in practice metal. Yet, there are a few types of metal that must be purchased due to the lack of donation of a specific size but also for traceability. For example, the program does not receive much donated 3/8" plate which is required for practice in the qualification courses. Further, the plate students must test with in those courses must have a trail of information back to the manufacturer such as, heat number, identification numbers, etc. and cannot be reused or recycled. To control cost, the program has just set up a new vendor with a local company that will sell this metal at their cost, saving thousands of dollars per year. Though smaller sections can cost more to run, an important step to consider is reducing the class size. Due to the complexity of welding machinery, there are times repairs or adjustments must be made. The repairs happen because there are more than 30 students in the shop at any given time completing one of possibly eight different welding/cutting processes. As of Spring 2019, the courses were approved to reduce the cap to 15 students. There is in-depth instruction on the proper setup and use of the equipment, but due to the lack of hands-on, mechanical skills that the new generation of students are displaying, there tends to be an increase in nonfunctional equipment. Depending on the issue, there can be some costs associated with equipment being taken out of service. In addition, the classes teach multiple processes at any given time. This means that the machinery must be changed to weld from one process to another. This again is taught in class, but students seem to find a way to damage the equipment during the change. Faculty believe with a few less students in each class, there will be more one-on-one time to help reduce the damaged equipment which can lower costs of repairs.
2.4 Did the review of program cost result in any actions or modifications? Please explain.	To move forward with new pipe welding curriculum and updated equipment, the program needs the college to assist with the several grant funding sources for capital items (i.e. welding stations, welding equipment, ventilation, electrical service

	where needed, etc.) and expanded space. As the new courses are scheduled, the department will need an additional instructor, possibly full-time, particularly if enrollment rises through expanded high-school partnerships. There are a group of current instructors that are nearing retirement. Interested candidates seem to only be interested in evening sections, so this will be a challenge. Due to the amount of metal sorting, equipment maintenance, and repairs, there is a dire need for a full-time lab assistant. The department would also like the use of a vehicle to make scrap runs more efficient as well as to promote the program.
INDICATOR 3: QUALITY	***RESPONSE***
3.1 What are the program's strengths?	The instructors are passionate about welding, the program and the students' success. The current curriculum is strong with only a few needed additions and improvements, and successfully prepares students for employment. The program enjoys many eager students who are ready to learn as much as ECC's Welding program has to offer, which includes exposure to other technical programs, such as HVAC, industrial manufacturing and CAD. The program has been rated #3 in state of Illinois for welding by universities.com, and faculty believe this can be improved with the suggested curriculum expansion.
3.2 What are the identified or potential weaknesses of the program?	Lack of space and funding will limit the potential of this program. In the coming years, the program can either innovate to the next level or stagnate. While the lab is well equipped with fabrication tools for sheet and plate, it is not ready for pipe and tubing fabrication. Courses currently do not run over the summer or on Saturdays, schedules that many students have requested. The program also is having difficulty finding qualified instructors who are available to teach during the daytime, as most are working in industry.
3.3 What are the delivery methods of this program? (e.g. traditional	The first ever hybrid welding class was recently introduced for WEL-120: Blueprint Reading for

format/online/hybrid/team-teaching etc.)? How does the program compare success rates of each delivery system?	Welders. It uses videos, modules and other forms of teaching for students to complete half of the course at distance. Two other courses are currently in development as hybrid offerings – Advanced Blueprint Reading WEL-221 and Cutting Processes WEL-214. The safety course WEL-111 could possibly go fully online due to content. The rest of the instruction heavily relies on equipment and hands-on learning in a safe, controlled environment. Sections are most often scheduled during the day (related to instructor availability) and typically offered in the standard 16 week format, though 8-week sections have been scheduled during the past few semesters starting with Blueprint Reading. This may be expanded in the future. There is some push for more night class options and also Saturday classes for students who work and sections over the summer. Enrollment, success and retention data from Institutional Research is disaggregated by modality. Programs are also given college averages for face-to-face, hybrid, and online sections of transfer and career-technical programs for benchmarking. Generally, success rates in online sections are somewhat lower than in face-to-face, but this is not always the case. Welding will closely monitor the retention and success patterns in its non-face-to-face sections.
3.4 How does this program fit into a career pathway?	Students can get a head-start in high school via early-college opportunities and continue through to bachelors, masters, or Ph.D. levels in welding engineering. The curriculum is also valuable to students pursuing other paths, such as construction and engineering. Basic curriculum will prepare students for entry level, lower paying jobs while the advanced curriculum will help place students in higher paying, more advanced skill level jobs. The weldments to be completed in the basic vs. advanced will be significantly different and based on code standards.
3.5 What innovations have been implemented or brought to this program that other colleges would want to learn about?	There are many innovative topics being discussed in the welding department. Much of the innovation would require a larger departmental budget, Perkins

	funding, capital items and/or other sources of funding. Some of the items are listed below: • Weld cameras and viewing screens (more inclusive demonstrations) • Document cameras in classroom to better show project details • Comprehensive pipe welding program and certificate, which is not offered at other Illinois community colleges (curriculum currently being developed) • Blueprint Reading for Welders WEL-120 offered as a hybrid program during fall of 2017 • Newly constructed shop equipment to help the shop function more effectively and efficiently (portable welding stands, scrap rod holders to be reused, and portable cutting tables) • ECC welding videos on D2L for student learning outside of class
3.6 Are there dual credit opportunities? If so please list offerings and the associated high schools.	Dual credit will be discussed with local high schools in the spring 2019 semester. Faculty look forward to making connections and the ability for students to easily transition from high school to college. The program prefers to move away from articulation and into the dual credit direction. Tech-Prep dual credit is growing each year over the past several and looks as if it might hit an all-time high for the start of the 2019-2020 school year with 11 students enrolled. As for previous and current data: 2008 was a big year with 38 seats and that dropped as low as 4 seats in 2012.
3.7 What work-based learning opportunities are available and integrated into the curriculum?	ECC's Welding program has apprenticeships available to students. Unfortunately, very few students apply for them. There currently is not a formal course on the books for internships (ie. WEL-xxx), but if an opportunity arose, a student could participate under the Special Topics umbrella.
3.8 Is industry accreditation required for this program (e.g. nursing)? If so, identify the accrediting body. Please also list if the college has chosen to voluntarily seek accreditation (e.g. automotive technology, NATEF).	N/A

3.9 Are industry-recognized credentials offered? If so, please list.	A certified welder test is offered by the American Welding Society, which students are encouraged to take, but it is not required. Content is covered in WEL-218 and WEL-220. Depending on the employer, students may or may not need to take and pass this test. As the program expands, however, all students pursuing pipe welding will be required to pass several exams which include a visual and x-ray or bend test, and obtain OSHA-10 certification.
3.10 Is this an apprenticeship program? If so, please elaborate.	ECC's Welding program has apprenticeships available to students. Unfortunately, very few students apply for them. There currently is not a course for a formal internship in Welding. ECC students can apply to the Pipe Fitters Local 597 as a pipe welder, starting the apprenticeship at approximately $19 per hour, leading to journeyman wages of approximately $52 per hour at the end of the five-year apprenticeship. ECC's program typically has 3-5 students who are accepted each year, a number that will hopefully increase.
3.11 If applicable, please list the licensure examination pass rate.	As mentioned in 3.9 above, a certification test is offered, but is not required for employment. The program does not have pass-rate data.
3.12 What current articulation or cooperative agreements/initiatives are in place for this program?	The program is looking to move away from articulation and into the dual credit direction. Articulation is has been agreed upon for the Fox Valley Career Center only, due to their longer more intense curriculum. Additional agreements may be established over the next few semesters. A pathways team is working on possible dual credit scenarios with all local feeder schools who offer welding. This is a move in a positive direction to help students prepare for employment in less time from earning their diploma.
3.13 Have partnerships been formed since the last review that may increase the quality of the program and its courses? If so, with whom?	As mentioned above, the program maintains strong relationships with a handful of employers who generously donate supplies, and a new connection has been made with Weld-Ed. The college has reached out to Local 597 Pipe Fitter/welders training center and have received donations, presentations, and other supportive items. Recently, additional relationships

	have been established with other community college's welding programs.
3.14 What professional development or training is offered to adjunct and full time faculty that may increase the quality of this program?	There are plentiful and various professional development opportunities for faculty at the college. The faculty contract allows for professional development funds, and includes part-time faculty. The college offers in-house training on various subjects. Even in light of recent travel restrictions and other financial constraints, many faculty utilize professional development funds to attend conferences in their discipline. The program has development opportunities within the professional networks such as Weld-Ed (National Science Foundation), Fabtech Chicago, IMTS, Lincoln Electric Welding School, Miller Electric instructor courses and the American Welding Society, where some instructors attend district meetings. Students are also encourage to be members of AWS, and will receive publications, scholarship updates, learning module access, and have the ability to attend the AWS Chicago Section meetings. The full-time instructors take advantage of the cutting edge conferences, conventions, and seminars offered by vendors, manufactures and educational facilities. Training for better teaching strategies would be beneficial for all welding instructors to learn more about pedagogical approaches with today's learners (especially as students have less exposure to hands-on learning while in high school), incorporating more technology, upholding content rigor, and addressing classroom management issues such as attendance and tardy policies, which are important when addressing professionalism There are many opportunities to strengthen the content knowledge and skills of the welding instructors through various avenues but these are not being taken advantage of. Currently, the part-time instructors do not take advantage of the professional expense as most of them also work outside of ECC. Within the discipline, new training needs and interest exists for OSHA-501 and OSHA-511, and from a

	pedagogical perspective, all instructors could benefit from additional development on teaching strategies.
3.15 What is the status of the current technology and equipment used for this program?	Some of the equipment currently being used for the program needs to be updated. There currently are many machines dating back to the late 1970's and even more from the 80's and 90's. Training students on the machines they will use in today's workforce is vital. Looking forward, new equipment will be needed to establish a comprehensive pipe welding program, as well as space to accommodate it. The program is currently bursting at the seams and more space is needed to continue to operate efficiently, effectively and safely. From an instructional standpoint, the addition of document cameras in the welding classrooms and weld cameras in the shop could elevate learning through more effective modes of teaching.
3.16 What assessment methods are used to ensure student success?	When a course has low retention or success rates, the process used to determine the issue(s), is to look at the manner in which the content is being conveyed to the students, evaluation methods, lab vs. classroom time ratio, and time management/efficiency. Faculty also desire to reach out to more employers to bridge the gap between school and employment and properly set expectations for the workplace. Within the lab setting, students are provided time to practice techniques with feedback to guide them until they can confidently and efficiently perform the skill.
3.17 How satisfied are students with their preparation for employment?	There has been an overall very positive response to the program and also preparation for employment. Nearly 70% of responders to the CT survey were very satisfied with preparation for their future and also their satisfaction of the ECC Welding Program.
3.18 How is student satisfaction information collected?	Despite ICCB rescinding the requirement for the CT Follow-up Survey, the college's Institutional Research department continues to execute this survey protocol one year after certificate or degree completion. In addition, all completers are surveyed *each year*, not just prior to the review, so a full five years of responses can be studied.

3.19 How are employers engaged in this program? (e.g. curriculum design, review, placement, work-based learning opportunities)	Employers provide feedback regarding the various topics and skills they would like to see students possess. There are also opportunities for students to complete internships which help transition what they are learning at ECC to the job, though like apprenticeships, are not frequently done by students currently.
3.20 How often does the program advisory committee meet?	The program has struggled with running a steady, robust committee. The last one held only had one attendee. Employers are providing valuable feedback, in particular regarding the pipe fitting program, but it would be better to have a group meet in a more formal setting. For example, the program wants to study how well learning outcomes for the courses and credentials match employability and industry need.
3.21 How satisfied are employers in the preparation of the program's graduates?	Typically, the employers are happy as they continue to reach out for more ECC students. If anything, they may comment on the need to address professionalism skills, which the faculty agrees with.
3.22 How is employer satisfaction information collected?	Like most CTE programs, Welding strongly relies on employer feedback received from industry partners, usually through Advisory meetings and general word of mouth.
3.23 Did the review of program quality result in any actions or modifications? Please explain.	Faculty feel they need to tighten the reigns on the students to be better prepared for the workforce from a professionalism standpoint. Attendance and tardies can be a problem, especially for the daytime students. It has been noted that many Welding students do not take advantage of support resources such as instructor office hours, the writing center, resume building assistance, and other assistance available on campus. Still, many students have inquired about tutoring for various courses such as blueprint reading and metallurgy. It is possible there could be a similar need for other technical programs with theory-related content in the division, so perhaps the idea can be explored. Curriculum updates are being planned, including name changes to reflect those currently in industry. Given its success, there has been some consideration of adding ICAPS sections with a possible Spring start instead of fall. The program will put together a

	recommended sequence chart to help keep students on track towards completing the stackable credentials.

DATA ANALYSIS FOR CTE PROGRAM REVIEW

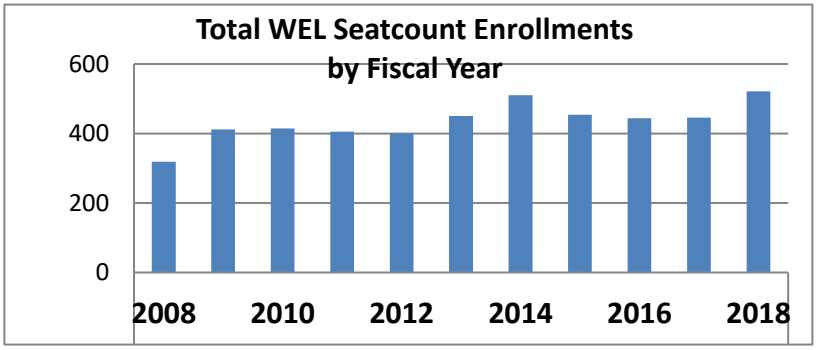
Please complete for each program reviewed. Colleges may report aggregated data from the parent program or report on enrollment and completion data individually for each certificate within the program. Provide the most recent 5 year longitudinal data available.

CTE PROGRAM	**Welding Fabrication Technology**				
CIP CODE	**48.0508**				
	FY2014	FY2015	FY2016	FY2017	FY2018
NUMBER OF STUDENTS ENROLLED (*SU/SR DUPLICATED SEATCOUNT ENROLLMENT for ALL WEL COURSES)	498	440	424	428	486
COMPLETIONS					
AAS – WELDING FABRICATION TECHNOLOGY	10	6	4	4	10
VS-WELDING	9	5	11	3	17
BVS-WELDING	11	11	19	14	22
BVS -ARC WELDING	6	2	3	2	4
BVS-MIG WELDING	26	15	27	17	37
OTHER (PLEASE IDENTIFY) *OVERALL COURSE SUCCESS (A-C) RATES, excluding withdrawals	94%	92%	86%	81%	88%
OTHER (PLEASE IDENTIFY)	Program also receives course-level enrollment and success data by modality as part of their Quality review.				

How does the data support the program goals? Elaborate.

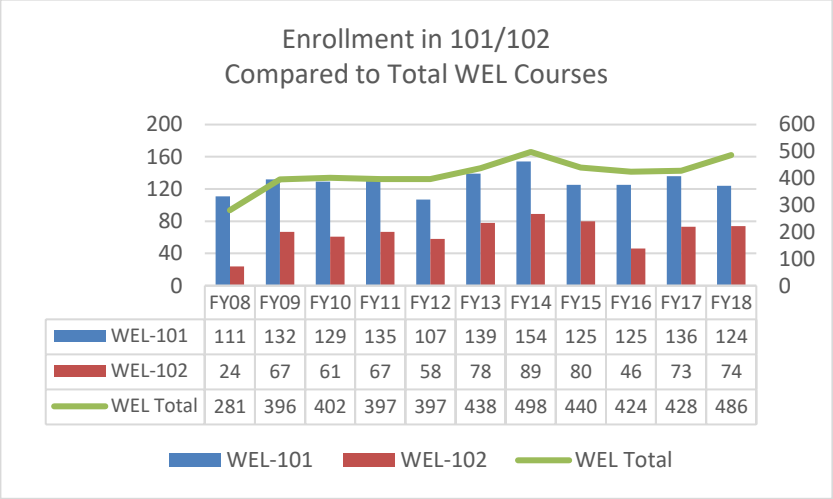
ENROLLMENT

There are a few courses that have displayed a drop in enrollment over the past five years; however, the program as a whole has been on a rise just eclipsing the previous highest year in 2014.



WEL-101 and WEL-102 are foundational entry courses for the program and have shown drops of 19% and 17% over

the past five years, though again, 2014 was an unusually high year. The courses, like the program, show a long term trend holding relatively steady over 10 years. Enrollment in the Welding program often runs counter-cyclically to the local economy. Unemployment is now very low, which means students and potential students are working and less inclined to enroll.



	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18
WEL-101	111	132	129	135	107	139	154	125	125	136	124
WEL-102	24	67	61	67	58	78	89	80	46	73	74
WEL Total	281	396	402	397	397	438	498	440	424	428	486

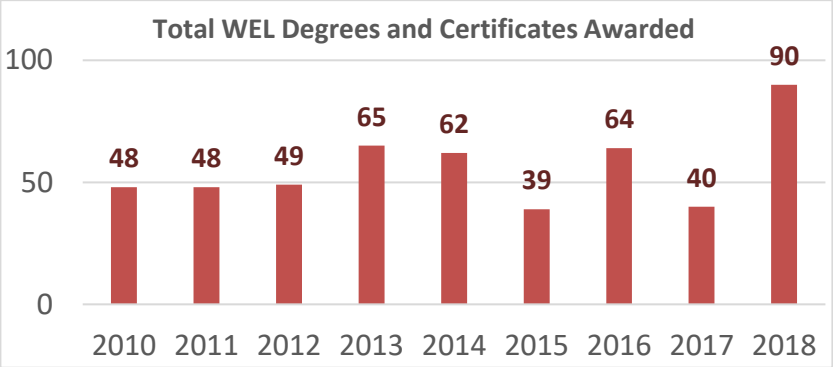
Another figure of decline is WEL-214: Cutting Processes which has decreased 19%. This course is only offered every 4th semester and is only required for the A.A.S. degree. As the program begins to encourage more degree completions, enrollment should rise. Other courses running on such a rotating schedule include WEL-112, 113, 221, and 215.

The courses with the highest enrollment reflect the most sought after certificate; Basic Vocational Specialist in MIG Welding. These courses include, WEL-101, WEL-102, WEL-120, WEL-208, and WEL-220. Patterns will be discussed below for Completions. Conversely, WEL-218: Arc Qualification is very low enrolled, as most students do not pursue the BVS for which it is required and it is a difficult course. The program my try running it in the summer session. This would encourage students who want a summer class to take it. In addition, it would run four days per week which is the best way to train welders.

RETENTION/SUCCESS

The retention rate overall for WEL courses is high, averaging 93% in FY18. The course falling far below this is WEL-218 at 78% for reasons discussed above. Other courses often hit 100% retention.

	While success rates have dropped between 2014-2017, there was an increase between 2017 and 2018. This increase in retention and success is due in part to reducing class size which has allowed more one-on-one time with each student. In addition, the WEL-101 course is in the process of being extended to more adequately prepare our students to build a better foundational of learning. Generally, the tech-prep students are successful in the program. Because of high-school requirements, they stay enrolled, and can perform very well. In 2018, all 7 were successful in WEL-101 and WEL-102. Less than 50% of students are passing the qualification classes with both 3G and 4G certification. This may be a result of student's motivation but also lack of time in Welding I. Welding I is foundational and students need more time on task. The faculty are working with the Curriculum office to expand the lab time within the current 3 credit hours. COMPLETION The strongest components for completion are the two BVS certificates in Welding and MIG Welding, which have grown over the review period. MIG only requires 15 credit hours, there is high demand for MIG welders in the area, and it is the easiest of the certificates. With only one additional 2-credit course in Metallurgy, student then stack into the Welding BVS. Strong numbers here have a lot to do with the success of the ICAPS program, which recruits students and provides them supplemental supports to finish their training. As for the BVS in Arc Welding, there has been a 33% drop in certificates completed since 2014. As mentioned, the course that distinguishes this credential from the MIG, WEL-218, is difficult and low enrolled. Additionally, this SMAW skill is less sought-after in the district, so there is less incentive than for the MIG/GMAW. The VS certificate has had some growth. This combines advanced work in welding, industrial technology electives, and two general education courses in math and communications (which are part of the A.A.S.). The number of degree completers has bounced back to the level seen in 2014 (n=10). Moving forward, the program intends to direct more students to complete the A.A.S. More students should be pursuing it, but one current barrier is the

	lack of courses offered in WEL year-round, as well as some offered only every two years. This lack of continuity has a negative effect on success rates. The Welding program is showing excellent progress with students earning credentials. The stackable nature of them allows for additional skill as they continue. In 2018, the program awarded the highest number of credentials in its history. 
What disaggregated data was reviewed?	Institutional Research regularly provides enrollment and success data disaggregated for course modality and for early college credit students, such as tech prep and middle college. Within CTE programs specifically, IR provides statistics for program enrollment and completion disaggregated by gender, age and race/ethnicity. Patterns for WEL will be addressed in items below.
Were there gaps in the data? Please explain.	Not surprising, the proportion of women enrolled in the program is much smaller than at the college overall, but has been rising with 7% in 2018. It appears that they complete at the same, if not slightly higher, levels than their male counterparts. Latino students comprise 25% of the enrollment over the past five years and 22% of the completers, while white students represent 67% of enrollment and 70% of completion. This will be monitored for any concerns.
What is the college doing to overcome any identifiable gaps?	ECC is a Leader College within Achieving the Dream. Under this membership, the *Student Success Infrastructure* coordinates data analysis and new initiatives from an equity mindset. Many projects will address all students, but others are focused on specific populations. Across the college, faculty are very interested in learning more about existing achievement gaps and discussing strategies to close them. Generally, these

	discussions consider student support services and college policies, but where needed will veer into the classroom.
Are the students served in this program representative of the total student population? Please explain.	The program skews white, currently at 65%, though there has been an increase of Latino students, between 26% and 29% in the last two years. ECC overall enrolls just over 40% Latino students. The program's largest age group is under age 23, but the proportion is slightly less than the college's, 49% compared to 55%. The program enrolls 9% over the age of 50 compared to the college's 5%.
Are the students served in this program representative of the district population? Please explain.	As mentioned, women are underrepresented in the program. The race/ethnicity figures for Welding more closely match the district, which is 26% Latino residents and 4% African-American.
REVIEW RESULTS	
Action	☒ Continued with Minor Improvements ☐ Significantly Modified ☐ Placed on Inactive Status ☐Discontinued/Eliminated ☐ Other (please specify)
Summary Rationale Please provide a brief rationale for the chosen action.	The curriculum and certificate changes discussed will make the ECC welding program even stronger, possibly increasing the rank higher than #3 in Illinois. For this to happen the program will need financial support to purchase the necessary equipment and provide space for the new pipe welding program. The welding industry is booming with skilled workers in high demand not only in the Elgin and/or Chicagoland area but across the country. Companies are hurting with the shortage and finding qualified welders is difficult. The ECC Welding program has been training skilled welders for several decades and it has shown success. In the next five years, the program would like to see growth in the number of students earning credentials to help with the welding crisis employers are seeing. The first step towards strengthening the program is to improve the current coursework by increasing the rigor and aligning the outcomes. Finding another qualified and available instructor who shares this vision would help tremendously and offset course-load.

	Next, creating additional certificate specifically for future pipe welders is a major goal of the program would reap many benefits for our students and local businesses. Therefore, the need for up-to-date equipment and machinery for the current and future curriculum is a pressing matter. Finally, adding an Applied Welding Metallurgy course to the catalog would be a win for the program. The welding department strongly believes that there would be many benefits for the students if they were to take such a course as this will address all facets of the welding industry.
Intended Action Steps What are the action steps resulting from this review? Please detail a timeline and/or dates for each step.	Next Year: • Updated curriculum – course name changes to reflect industry standards, contact/credit hour changes to WEL-101, course updates by FA19 • Addition of new CNC Plasma Cutting Machines for WEL • New course development: o Applied Welding Metallurgy (FA19) o SMAW Pipe Welding (SP20)– Basic curriculum development by SP20 o SMAW Pipe Welding – Advanced curriculum development by SP20 o GMAW/FCAW Pipe Welding – curriculum development by SP20 o GTAW Pipe Welding – Basic curriculum development by SP20 o GTAW Pipe Welding – Advanced curriculum development by SP20 Next Five Years: • Updated Certificates and Degrees based on changes listed above to Curriculum Committee FA20 • Creation of new BVS in Pipe Welding FA21, take to Curriculum Committee FY 21 • Hire additional full-time instructor within the next five years • Acquire welding truck within the next five years RESOURCES: • New equipment is needed within the current lab courses and then for the proposed pipe welding program, all of which requires significant financial support. • New equipment, machinery and more students will require more space to run.

	• The current adjunct faculty are all approaching retirement age and the lack of skilled or qualified welding instructors is an issue. Most welders have no desire to teach part-time as the money to be made in industry is much higher with the level of education the college requires. • The welding program also has the need for a functional truck for donation pickup, scrap drop-off, student recruitment, and actual "practical" welding applications (use outdoors).

Academic Disciplines	
COLLEGE NAME:	Elgin Community College
FISCAL YEAR IN REVIEW:	FY2019
DISCIPLINE AREA:	**Astronomy**
REVIEW SUMMARY Complete this section to review the Academic Discipline as a whole. Use the Course Specific Review portion of this template for each course reviewed in the Discipline.	
Program Objectives What are the objectives/goals of the discipline?	The program consists of two distinct and non-sequential courses. Objectives for each include topics of Scientific Reasoning, Metrology, Data Analysis, Problem Solving and Communication. These are characterized by the understanding and application of the scientific method, laboratory techniques, astronomy principles, and experimental techniques to observe astronomical phenomena.
To what extent are these objectives being achieved?	The quality of the current course offerings are excellent. Astronomy instructors have several years of astronomy teaching experience, connections to local astronomy organizations, and backgrounds in either Astrophysics or Physics.
How does this discipline contribute to other fields and the mission of the college?	Both Astronomy courses are foundation science courses and currently meet the needs of students to provide either general education credit or elective credits towards the Associate in Arts, Associate in Science, Associate in Fine Arts, or Associate in Liberal Studies degrees. Additionally, they contribute to the General Education outcomes of the college, particularly Critical Thinking and Scientific Literacy.
Prior Review Update Describe any quality improvements or modifications made since the last review period.	Hire a full-time Astronomy faculty • <u>Progress reported:</u> Instructional Coordinator is developing the new position justification form Transition ATY-100 into two courses: 111 – Solar System and 112 – Stars/Galaxies. • <u>Progress reported:</u> Under discussion. ATY curriculum development on hold as engineering and physics course additions were prioritized. Additionally, enrollments in the current sections of ATY-100 have seen a levelling off of upward trends.

	Conduct a feasibility study for an observatory structure on campus. • Progress reported: No progress due to challenges of current budgetary climate Add an additional section of ATY-101 • Progress reported: Enrollment history currently supports only one section. Add an additional section of ATY-100 (or ATY-111/112 if developed) • Progress reported: Enrollments improving, not yet able to add back a fourth section. Hire one or two additional adjunct faculty for astronomy instruction. • Progress reported: One additional new adjunct hired in 2018.

REVIEW ANALYSIS

Complete the following fields and provide concise information where applicable. Please do not insert data sets but summarize the data to completely answer the questions. The review will be sent back if any of the below fields are left empty or inadequate information is provided.

Indicator 1: Need	**Response**
1.1 What mechanisms are in place to determine programmatic needs/changes for AA, AS, AFA, and AES academic programs? How are programmatic needs/changes evaluated by the curriculum review committee and campus academic leadership?	Institutionally, degree requirements are vetted through the faculty-led Curriculum Committee and approved proposals are forwarded to the Vice President. Within this proposal process, initiators are encouraged to review implications and discuss potential changes with the affected division's faculty and administration. Where relevant, data is provided by Institutional Research to inform discussion and decisions. Otherwise, program faculty assume ownership of course content as maintained on the formal course outline housed within CurricUNET and displayed within the college catalog. Changes follow an approval work flow which includes the Curriculum and Assessment department, the dean's office, Transfer Coordinator, Advising and the Curriculum Committee. Program faculty are encouraged to consult with others on specific details, such as for applicability of various basic skills pre-requisites in math and literacy, and for IAI or other transfer implications. Section syllabi are

	expected to reflect the current course description and learning outcomes. Current Astronomy courses are standard for the first two years of college. Additional courses are contemplated although presently not prioritized. ATY-101 has been submitted for IAI P1 906 articulation and approved as of 5/6/19, thereby promoting enrollment and student success. ATY-100 will be submitted for IAI P1 906L laboratory course approval in the upcoming year.
1.2 How are students informed or recruited for this program?	Students enroll in Astronomy courses based on curiosity and interest, and the desire to fulfill science requirements for a degree. Additional sections will be offered as enrollments increase over the next five years as the department believes it has established the preferred scheduling format. Subsequent course development and articulation activity may further promote student interest.
INDICATOR 2: COST EFFECTIVENESS	***RESPONSE***
2.1 What are the costs associated with this discipline?	The program's cost is comparable to other physical sciences cost averages. The costs associated with ATY include faculty salaries, instructional supplies, and printing.
2.2 What steps can be taken to offer curricula more cost-effectively?	The Astronomy department is running efficiently and classes are close to full each semester. Additional ATY-101 online course offerings could help to make the program more cost efficient and free up classroom space. There have been few major equipment purchases over the past four years and the use of part-time instructors for all ATY-100 courses have kept program costs low.
2.3 Is there a need for additional resources?	Enrollment would support a full-time faculty in this area and this would be a positive addition to the ATY/EGR/PHY department. As the number of sections of ATY-100 are increased, additional classroom supplies will be required. Major telescope expenditures are complete at this time, which will help to minimize future costs of the program.

	An observatory would add an additional hands-on laboratory dimension to the Astronomy program, and could perhaps be located near the Burlington campus.
INDICATOR 3: QUALITY	***RESPONSE***
3.1 Are there any alternative delivery methods of this discipline? (e.g. online, flexible-scheduling, accelerated, team teaching, etc.)?	Additional sections and additional formats are now offered. The online version of ATY-101 is a recent addition to the program and the additional access to online materials has allowed for more classroom content flexibility and peer instruction segments for ATY-100.
3.2 If the college delivers the course in more than one method, does the college compare success rates of each delivery method? If so, how?	Enrollment, success and retention data from Institutional Research is disaggregated by modality. Programs are also given college averages for face-to-face, hybrid, and online sections of transfer and career-technical programs for benchmarking. Generally, success rates in online sections are somewhat lower than in face-to-face, but this is not always the case.
3.3 What assessments does the discipline use to measure full-time and adjunct instructor performance in the classroom?	ATY traditional courses are staffed solely by adjunct faculty. All classroom evaluation processes are guided by the college's contracts with the faculty union, ECCFA, and the Faculty Evaluation Handbook. Techniques include observation and self-assessment.
3.4 How does the discipline identify and support at-risk students?	The department receives updated information from tutoring and other college support service areas and directly communicates this information to students. Tutoring availability and scheduling is updated regularly and faculty utilize retention alert to ensure student success.
3.5 To what extent is the discipline integrated with other instructional programs and services?	The programs of Astronomy, Engineering and Physics are considered as a subset of departments within the Health Professions, Math, Science and Engineering division, and are overseen by a singular Instructional Coordinator who is full-time faculty.
3.6 What does the discipline or department review when developing or modifying curriculum?	The dean and instructional coordinator analyze available data to determine ways to maximize retention and success including evaluating faculty performance and reassessing course outcomes.

3.7 When a course has low retention and/or success rates, what is the process to address these issues?	The department priority is to maximize success and retention by hiring quality instructors and offering courses consistent with student needs as determined through enrollments and changing transfer program requirements. In addition to this, faculty and course assessment activities are ongoing to improve both instructor quality and student success.

LIST ANY BARRIERS ENCOUNTERED WHILE IMPLEMENTING THIS DISCIPLINE.

Opportunities to maximize retention and success are continuously sought using available data to identify areas for change. Challenges in this area are principally centered on finding ways to effectively assess nascent science students and engaging them in the life-long learning process. In addition to knowing about our students' learning related to Astronomy course level outcomes, the faculty would like to gain insights into student study habits and their present day preferred methods for assimilation. A full-time faculty in this area could be supported and would be a positive addition to the ATY/EGR/PHY department.

DATA ANALYSIS FOR ACADEMIC DISCIPLINES

Please complete for **each course** reviewed in the Academic Discipline. Provide the most recent 5 year longitudinal data available.

ACADEMIC DISCIPLINE AREA	Astronomy				
COURSE TITLE	ATY-100: Astronomy				
COURSE DESCRIPTION	Non-math, introductory survey course related to the fundamentals of astronomy and space science. Emphasis is placed on star constellation identification, astronomical instruments and their use (practical astronomy), descriptive astronomy, elementary celestial mechanics and theoretical astronomy.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	162	160	180	164	175
CREDIT HOURS PRODUCED	486	480	540	492	525
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	89%	96%	98%	87%	91%
IAI STATUS (LIST CODE)	P1 906				
COURSE TITLE	ATY-101: Elementary Astronomy				
COURSE DESCRIPTION	A non-mathematical survey of astronomical science, including extensive historical analysis, a descriptive				

	treatment of the most recent discoveries involving planets, black holes, pulsars, and quasars. Includes discussion of recent hypotheses and evidence concerning the scientifically explained origin and evolution of stars and the universe itself.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	66	53	57	57	40
Credit Hours Produced	198	159	171	171	120
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	73%	84%	73%	82%	85%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	Western Illinois University 1/14/16, Northern Illinois University 6/29/16, Illinois State University 12/10/15				
How does the data support the course goals? Elaborate.	<u>ENROLLMENT</u> Overall, enrollment for the past four years was essentially constant, peaking slightly in FY 16. ATY-100 ended the review period higher than five years ago, while ATY-101 online had its lowest year of the five years in FY19. Currently, ATY-101 online enrollments are approximately one-fourth the enrollment of the traditional format ATY-100. This is expected for a population of beginning students who may prefer an instructor-led course meeting on a regular basis to facilitate the learning process. Enrollments are expected to increase for both courses. The field of astronomy has seen developments over the past 20 years that have dramatically changed perceptions of the universe. The area is expected to continue to attract student interest as improved data becomes available and questions of a cosmological nature such as those concerning Dark Matter and Dark Energy are addressed. <u>RETENTION & SUCCESS</u> Course success and retention rates have been consistent with the Physical Sciences average for traditional modalities over the past five years. Online course success and retention rates for ATY-101 have increased within the review period and were also on a par with the Physical Sciences average over the past two years.				
What disaggregated data was reviewed?	Institutional Research regularly provides disaggregated data for course modality and for early college credit students, such as tech prep and middle college. ECC is a				

	Leader College within Achieving the Dream. Under this membership, the *Student Success Infrastructure* coordinates data analysis and new initiatives from an equity mindset, and disaggregates institutional-level results for various focus populations based on race/ethnicity, program or enrollment type, etc. However, in most instances, this disaggregation is not done at the program level, though it may do so in the future, provided there are sufficient n-sizes to do so reliably. Across the college, faculty are very interested in closing achievement gaps and participate in institutional efforts to raise achievement for all students.
WERE THERE IDENTIFIABLE GAPS IN THE DATA? PLEASE EXPLAIN.	Beyond modality, gap analysis has not been performed for students in Astronomy.
ACADEMIC COURSE REVIEW RESULTS	
Intended Action Steps Please detail action steps to be completed in the future based on this review with a timeline and/or anticipated dates.	• ATY-101 IAI approval, FA19 • ATY-100 IAI lab course approval FA19 • Add one additional section of ATY-100, SP20 • Departmental meeting to discuss course updates and possible additions, SU20 • Begin processes for course redesign or new course curriculum, FA20 (for implementation FA21) If approved, onboard new faculty to add additional sections, enrollments permitting SP22
Rationale Provide a brief summary of the review findings and a rationale for any future modifications.	Astronomy currently schedules 10 sections throughout the academic year including online. Enrollments for the past 5 years trended slightly lower in parallel with the overall college enrollments. Instruction is provided by high quality instructors with the majority of sections covered by adjunct instructors. As a result of this review, ATY-101 has been submitted and approved by IAI for P1 906 articulation approval to assist with transferability and make the course a more viable student option. The working plan for the next five years will focus on expansion opportunities. Looking at the seat-count enrollment for the past ten years, a conservative linear fit has enrollments up 15% over the next ten years. Additional sections will be necessary and additional course offerings are contemplated. There is an expressed need for additional staff, facility space and laboratory equipment.

Resources Needed	A full time faculty in this area could be supported and would be a positive addition to the ATY/EGR/PHY department. An observatory would supply additional active, hands-on learning and co-curricular opportunities.
Responsibility Who is responsible for completing or implementing the modifications?	Divisional administration, Instructional Coordinator, and related faculty when available.

Academic Disciplines	
COLLEGE NAME:	Elgin Community College
FISCAL YEAR IN REVIEW:	FY2019
DISCIPLINE AREA:	**Biology**
REVIEW SUMMARY Complete this section to review the Academic Discipline as a whole. Use the Course Specific Review portion of this template for each course reviewed in the Discipline.	
Program Objectives What are the objectives/goals of the discipline?	The program-level learning outcomes for the Biology Department are the instruction of: • Energy Flow • Nutrient Cycling • Homeostasis • Basic Chemistry • Levels of Organization • Change in the Living World (evolution) The program serves both the general education student looking to fulfill science and lab requirements as well as those pursuing a health related career.
To what extent are these objectives being achieved?	The biology department prepares students for their eventual program goal in health care or other STEM-based scientific pursuits. This early learning process generates students of all types, some willing to put forth the extra effort to enable them to meet (or exceed) established program goals and outcomes, and some less so. Faculty strive to find new ways to make students both successful students as well as independent, critical thinkers through the educational offerings, ensuring that students will be successful in any avenue they choose once they leave complete their required (and sometimes desired) coursework. Prior to program completion, most outcomes are required to be mastered. An example would be in BIO-246: Human Anatomy & Physiology II. Cardiovascular physiology requires students to master their understanding of homeostasis. This outcome is reinforced with both lab and lecture material, building on the concept which was

	introduced in the basic biology classes and then mastered in the higher level sequential. Additionally, results from an annual program-level assessment demonstrates increased competency the further in the sequence a student goes.
How does this discipline contribute to other fields and the mission of the college?	A large number students enrolled in biology either are in the health professions programs, or geared towards them. With that in mind, obviously, biology courses play an indirect role in the employability of these students upon graduation. Biology coursework fulfills the life sciences and lab requirements of the transfer degrees (AA, AS, AFA), serve as admission and/or program requirements for several health programs, and can also serve specific program needs, such as the Nutrition course (BIO-101) being required in the Culinary program. The curriculum also makes a significant contribution to the General Education learning outcomes of the college. This is most pronounced for Scientific Literacy and Critical thinking, but some courses, such as environmental biology, contribute to additional outcomes such as Global and Multi-cultural Literacy. One instructor, in a topic on global nutrition, brings the concept local by having her students (voluntarily) participate in community events combatting food need among area organizations. Biology faculty have worked hard to contribute to the college's strategic goal of extending learning outside of the classroom. As discussed below in the accomplishments, students are able to summarize and present their work at Skyway and Honors program events. Students can volunteer in the campus gardens to help with maintenance and planting, but also providing instruction on the value of pollinators as well as plant identification. Environmental students are encouraged to test drive alternative powered vehicles commercially available. Lastly, Biology is a strong component of the early college credit opportunities for high school students in the district. Anatomy instructors provide cadaver instruction to local high school biology classes, providing unique access to a learning tool while simultaneously opening the door to educational

	opportunities which can be gained at ECC (and elsewhere) if they pursue a health related career field. Ultimately, the idea for all of these examples is to extend the book learning to applied learning.
Prior Review Update Describe any quality improvements or modifications made since the last review period.	**Develop a hybrid section of BIO-108 to meet student demand.** • Progress reported: Development was completed and the modality was offered for the first time in FY16. Since then, the sections fill very quickly. The department concluded that this modality of instruction is very popular and in high demand, and the hybrid modality became a standard offering every semester, continuing to attract considerable interest for its convenience for working and commuting students. **Identify more students who can present novel research at the Skyway competition.** • Progress reported: The Honors section of Biology for Contemporary Society (BIO-108) was used as a vehicle to generate original research projects for the SKYWAY Competition. Under the guidance and direction of adjunct Professor Ginger McHugh-Kurtz, four students completed research projects in ECC's prairie and presented their research at the annual SKYWAY Scientific Competition in 2015. The Honors section the course continues to be the main source of STEM related research and conference participation within the biology department, as honors students need to perform additional work for honors credit. The barrier in attracting additional students, who are generally not moving into a true biology program pathway, is an incentive for conducting this research. **Farm-to-school and Garden-based learning.** • Progress reported: The department purchased a total of three raised garden beds with money from the instructional supplies budget and are used to raise produce transplanted from the greenhouse. These resources are used to cultivate interest in organic gardening, providing opportunity for students to work with faculty • Later, the raised garden beds were transformed into a species identification sample site. Native

	plants incorporated by biology faculty into on-campus restoration sites, were planted in small clusters into the beds with the intention of adding signage to help students, observers and the community at large, identify the names of local vegetation with the intention of giving individuals ideas to incorporate such plants in their own landscaping projects. **Reduce the number of sections of BIO-240: Human Anatomy & Physiology offered each semester.** • Progress reported: Since Fall 2015, BIO-240 has been reduced to one section each semester, with a capacity of 24 students. This highly demanding, rigorous 5-credit hour course perpetuated a cycle of non-successful students who found it very difficult to meet the course objectives in the standard 16 week semester. However, the course still provides a solution for the prepared student looking to enter the health professions at ECC, so it continues to be offered, but one section is considered the maximum offering. **Begin formal course assessment of BIO-108, BIO-245 and BIO-150.** • Progress reported: Tools have been developed and implemented in 108 and 245. BIO-150 has been withdrawn. **Revise BIO-108 lab manual with a Hominid skull lab.** • Progress reported: The department purchased 12 sets of hominid skulls to teach evolution during BIO-108 labs and is now a standard lab activity for macroevolution. **Create a lab manual for BIO-110: Principles of Biology that aligns the curriculum between instructors.** • Progress reported: The faculty who teach the course agreed on the rigor, exam format, and the grading rubric for the two required lab quizzes. Specifically, they met over a series of months to discuss the topics for the lab quizzes and created a list of standardized topics. Furthermore, to reduce variation in the assessment tool, only two faculty members create the quizzes for the entire

	department which are administered during the same week of instruction. • Second, the department has worked for two years on designing the lab manual. Feedback was solicited from all instructors and a master topic list and the timing of each lab exam was established. The manual now specifies the exact number of labs needed to complete the semester, which map to the course objectives on the master course outline. This new manual will help the instructors maintain a consistent lab experience for all students in BIO-110, the department's highest-enrolled course. **Develop and launch an online section of BIO-101: Nutrition for Today.** • Progress reported: Professor Whitsitt has completed the development of the online section, which will be offered for Fall 2019. **Additional accomplishments since FY14 (not related to FY14 goals):** • Biology has been a leader in assessment practices since its inception, and continues to ensure quality assessment practices among its faculty. • The program has worked hard to develop pathways for education in fields requiring biological education. This process, delineating sequential courses for students who wish to move into health care, biology, pre-professional programs and specialty science curricula (dietetics, environmental science), in cooperation with ECC's Advising, has produced documents/websites and pamphlets to better guide students through the necessary coursework for more seamless transition to additional programs both within the college as well as Illinois 4 year institutions.

REVIEW ANALYSIS Complete the following fields and provide concise information where applicable. Please do not insert data sets but summarize the data to completely answer the questions. The review will be sent back if any of the below fields are left empty or inadequate information is provided.	
Indicator 1: Need	**Response**

1.1 What mechanisms are in place to determine programmatic needs/changes for AA, AS, AFA, and AES academic programs? How are programmatic needs/changes evaluated by the curriculum review committee and campus academic leadership?	Institutionally, degree requirements are vetted through the faculty-led Curriculum Committee and approved proposals are forwarded to the Vice President. Within this proposal process, initiators are encouraged to review implications and discuss potential changes with the affected division's faculty and administration. Where relevant, data is provided by Institutional Research to inform discussion and decisions. Otherwise, program faculty assume ownership of course content as maintained on the formal course outline housed within CurricUNET and displayed within the college catalog. Changes follow an approval work flow which includes the Curriculum and Assessment department, the dean's office, Transfer Coordinator, Advising and the Curriculum Committee. Program faculty are encouraged to consult with others on specific details, such as for applicability of various basic skills pre-requisites in math and literacy, and for IAI or other transfer implications. Section syllabi are expected to reflect the current course description and learning outcomes. Biology faculty have been actively pursuing articulation and other pathway arrangements to aid student planning and transfer. Biology pathways are now included on the college website to help students navigate curriculum options at transfer universities. Specific agreements include ones for Dietetics and Pharmacy. The first is a degree completion agreement with Dominican University has created a smooth and seamless process by which eligible ECC students will ultimately be able to complete a Bachelor of Science degree in Nutrition and Dietetics at DU after completing an Associate's degree at ECC. Additionally, a partnership with Roosevelt University has created an educational pathway agreement for top performing, qualified ECC students interested in becoming pharmacists. The Direct Enrollment Program provides a direct pathway for up to 15 students per year who successfully complete prerequisite courses at ECC to gain direct admission in the Doctor of Pharmacy program at Roosevelt.

1.2 How are students informed or recruited for this program?	Students come to the biology department from two avenues. Most students are geared towards the health professions, others choose to take Biology as part of a Life Science requirements for their degrees. The program also enrolls a substantial number of high school students via various early college credit programs. These courses include: • BIO-108 • BIO-110 • BIO-113 • BIO-114 • BIO-245 • BIO-246 • BIO-265
INDICATOR 2: COST EFFECTIVENESS	***RESPONSE***
2.1 What are the costs associated with this discipline?	The costs associated with this department include faculty, instructional coordinator, lab coordinator and lab assistant salaries; instructional and office supplies; maintenance and other contractual services; and printing.
2.2 What steps can be taken to offer curricula more cost-effectively?	The costs for the biology department are proportional to the number of full-time faculty employed and are in line with other program areas that heavily utilize equipment and supplies for instruction. Salary and benefit costs have remained relatively stable over the past five years taking into account increases in faculty salaries. Operational costs, however, have decreased by approximately $30K over the last four years, due in part to conservative budgeting strategies and the use of data-driven projections. Cost saving measures include: • A vetting process to determine which equipment will be purchased each year. Careful consideration is given to items to be purchased, always looking for the best option in quality and cost when developing the annual budget. • Repairing broken equipment in-house when possible instead of purchasing replacement materials. In addition, damaged anatomical models have been repaired by a local provider, instead of buying new models.

	• Preventative maintenance protocol for microscopes has continued on a regular basis and allows minor damage to the microscope to be repaired at a much lower cost than having to replace the microscopes. • Enrollment trends are monitored closely and a concerted effort to offer sections at times that fit with students' STEM schedules have resulted in courses that are generally filled to capacity. Revenue has seen a steady increase the past three years due to these scheduling practices. • The department employs a part-time lab coordinator who maintains all lab equipment. This has helped to control unexpected repair costs. • Streamlined the process of ordering office supplies for full- time and adjunct faculty with designated faculty member responsible for collecting and placing orders to prevent the double and triple ordering of supplies. • The department continues to encourage faculty members to use D2L to communicate to students by posting syllabi, lectures, and assigning homework, which reduces the cost of printing materials.
2.3 Is there a need for additional resources?	• It is anticipated that all laboratory chairs (approximately 180) will need to be replaced within the next five years, as their hydraulic mechanisms are failing at an accelerated pace creating an unsafe situation for students. The department has begun to identify chairs to be replaced that are still under warranty. • The type of equipment involved in labs for biology classes (autoclaves, BodPod, cadaver lab equipment, etc.) is expensive and always at risk of breaking or malfunctioning. This is very difficult to predict, even with the regular maintenance. • An additional lab for microbiology would make it possible to offer more sections at desirable times for students, as presently, one section meets Friday evenings by necessity of lab space, but is not a preferred time among students. • As biology begins to explore new programming in the areas of botany and research, more funding

	may be necessary for startup costs and professional development. • Substantial professional development opportunities exist for faculty, along with funding for courses, conferences and training; however, adjunct faculty could benefit from expanding funding opportunities, as financial constraints prevent them from taking as many courses or attending as many conferences as preferred.
INDICATOR 3: QUALITY	***RESPONSE***
3.1 Are there any alternative delivery methods of this discipline? (e.g. online, flexible-scheduling, accelerated, team teaching, etc.)?	Biology is a high-enrollment program and needs to serve a wide range of students. Special attention is given to scheduling courses at times most convenient to students. There are sections scheduled throughout the day, mornings, afternoon and evenings. Only one lab course (BIO-110) is offered as a weekend section. During fall and spring semesters, biology courses are offered in 16-week length format, with the exception of one section each of BIO-245 and BIO-246 (the A&P sequence), which are offered in back-to-back 8-week sessions. While this can accelerate progress for students, it makes for a challenging semester, and enrollment is not as strong as with the standard 16 week format. The vast majority of the course offerings are in the traditional face-to-face instructional modality. BIO-105: Survey of Environmental Biology and BIO-101: Nutrition for Today are also offered online, and BIO-108, 110, 115, 245 and 246 have been offered in the hybrid format in addition to the traditional. Enrollment in these online and hybrid sections have been steady, and the program. Faculty have continuously worked to incorporate distance learning technologies into the face to face classrooms with a variety of resources such as ancillary online materials that accompany textbooks and lab manuals; online discussions on topics of relevance, and integrating online assignments and video lectures recorded by faculty have been integrated into face-to-face delivery of instruction.

3.2 If the college delivers the course in more than one method, does the college compare success rates of each delivery method? If so, how?	Enrollment, success and retention data from Institutional Research is disaggregated by modality. Programs are also given college averages for face-to-face, hybrid, and online sections of transfer and career-technical programs for benchmarking. Generally, success rates in online sections are somewhat lower than in face-to-face, and hybrid is very similar to face-to-face.
3.3 What assessments does the discipline use to measure full-time and adjunct instructor performance in the classroom?	All classroom evaluation processes are guided by the college's contracts with the faculty union, ECCFA, and the Faculty Evaluation Handbook. Techniques include observation and self-assessment.
3.4 How does the discipline identify and support at-risk students?	Biology is invested into making students successful. Tutoring is one essential aspect to provide assistance outside the classroom. This service enables students to seek assistance for course material questions, review lab models and other lab equipment. Tutoring is widely advertised, recommended and announced within the department. The tutoring center has established a satellite location near the Biology classrooms, which also is helpful. Posters, signage, faculty reminders, email and D2L are all sources to let students know this service is free and available. Individual faculty also employ strategies for success among students. From office hours to study sessions, faculty attempt to engage students as much as possible. One faculty member regularly comes in on Saturdays to allow students who are unable during the week to have open lab time with a professor, to ask questions, study and immerse themselves into the practice of sufficient preparation for exams. Another instructor uses the D2L discussion function to allow discussion of course material with the instructor facilitating the discussion and answering questions, which is beneficial for both working students and those with children, who find it difficult to make it to campus outside of class time. Instructors have implemented interactive homework assignments to support class concepts in different modalities to better support struggling students.
3.5 To what extent is the discipline integrated with other	Health care programs serve as the most common collaborators for Biology as so many students feed into these programs. As a result, communication

instructional programs and services?	among faculty in biology and health care programs is frequent and ongoing. As an example, the development and offering of the new BIO-201 nutrition course for health care students required frequent interdepartmental cooperation to develop it in such a way to meet the needs of these medically focused disciplines. As discussed earlier, biology has worked considerably with Advising in establishing the Pathways of education for biology/health care majors to aid students in transfer. Biology continues to work with local high school biology programs to provide cadaver viewing and education to high school students enrolled in anatomy courses. As mentioned, the courses are also widely available for early-college credit. Environmental biology has a few partnerships with community organizations, the longest being Friends of the Fox River, where students enrolled in BIO-115 regularly participate in stream monitoring efforts which provide data to FOFR for long-term trend monitoring. During the last five years, BIO-101 Nutrition for Today has continued its support for the culinary program, with a dedicated section offered for culinary students.
3.6 What does the discipline or department review when developing or modifying curriculum?	Biology has been a leader in integrating assessment into its curriculum since college wide assessment began. The courses regularly rotate planning with implementation, over the course of the school year, so substantial data has been accumulated for all courses. It was this type of data which gave evidence towards splitting the Nutrition course into one designed for general education and one for health professions preparation. Course outcomes within each were rewritten to meet the specific needs of the two various groups of students. BIO-201 also carries a biology pre-requisite (BIO-110 or BIO-113) which allows for more extensive rigor. A current example of an emerging curricular discussion is the interest to align general biology curriculum among all faculty teaching the course. As our most enrolled course, Principles of Biology (BIO-110), has a long history of serving the needs of

	additional higher level biology classes, as well as the health care programs. The need exist to align this course in such a way that all students enrolled are receiving the same general course outcomes and expectations. Effort has also been extended to bring adjunct faculty along in the curriculum development of every course, especially new adjuncts, so more curriculum is better aligned for all courses to enhance student success. As the math department revises its bank of offerings for developmental skills, biology consults on calibrating the math pre-requisites to ensure the expected level of proficiency without artificially high barriers.
3.7 When a course has low retention and/or success rates, what is the process to address these issues?	The department relies on various data sources to monitor course-level success and retention. It can compare itself over time and across departments. Monthly department meetings provide an opportunity for discussions on discipline related trends, skills and needs. All full time faculty participate in discussions and adjunct faculty are encourage to attend. Student success topics are openly discussed during these meetings, and in addition, the department's faculty separate into individual disciplines (i.e. General Biology, Microbiology, etc.) to bring the discussion to the course level. The program has established priorities and tasks specific subgroups of faculty to lead investigations and interventions. For example, current and recent activity has been chosen for high enrollment and room for improvement. The work being done to align curriculum across sections of BIO-110 will address, in part, lower rates in this critical course. Finding some common ground in instructional practices and consistency in assessment are the current avenues of focus to help balance course expectations. With other courses, frank departmental discussion on sources of the lack of success and/or retention have occurred. Evaluating the root of the problem becomes a focus, as issues are rarely one-sided, and sometimes, perspectives of other faculty on current

	practices can be of help to address and propose solutions. Student preparedness is another topic affecting success. A suggestion was made to develop a workshop for students in advance of taking BIO-110 the first time to let students know what lays ahead and how they can get off to a good start. For many students, the pace of the course prevents them from reestablishing their grade if they stumble early on, so getting them off to a strong start is a critical need. As the program considers expansion of the hybrid modality and new online options, attention will also be paid to ensure each instructional method allows students to demonstrate the course learning outcomes at equal levels. In general, data shows that success rate in hybrid sections is somewhat lower (although not by a huge margin) than the face-to-face sections, the program should investigate possible causes and potential changes to move outcomes up to par with the face-to-face success rate.

LIST ANY BARRIERS ENCOUNTERED WHILE IMPLEMENTING THIS DISCIPLINE.

- There is always some level of difficulty staffing some of the courses, most specifically the BIO-108/110 and BIO-265. It can be difficult to find qualified/available adjunct faculty to take over sections, especially as they are being added to schedules per increase of demand, once full time faculty have been assigned their regular load.
- Some course offerings are limited by not having enough lab space (rooms) that will allow sections to be scheduled at times more convenient to students, which effects enrollment. Microbiology is an example of a discipline that has scheduling limitations because of having only one dedicated lab for the course.
- While the tutoring center satellite location in A213 provides an excellent resource to support student learning, the program wishes there could be more coordination between tutors and faculty in terms of the topics covered in each course, for both lectures and labs. Biology faculty are interested in being part of the hiring process for new biology tutors.
- Success rates of biology students are not as high as other programs. By not having any developmental offerings, unprepared students often struggle with introductory biology courses. The program believes some students entering the BIO-110 lab course could benefit from some developmental work or previews to better set them up for succeeding in the challenging course which is a requirement in most health and STEM programs.
- Assessment data has shown that students tend to do better with topics that are more terminology based than application based. Faculty members had been advised to work on helping their students with being able to apply concepts and materials. For

example, students often struggle to make connections between stimuli and the needed cellular responses to maintain homeostasis; thus, faculty continue to strive to orchestrate more practical scenarios throughout the semester to ensure mastery of more challenging concepts in novel scenarios.

DATA ANALYSIS FOR ACADEMIC DISCIPLINES Please complete for **each course** reviewed in the Academic Discipline. Provide the most recent 5 year longitudinal data available.					
ACADEMIC DISCIPLINE AREA	Biology				
COURSE TITLE	**BIO-101: Nutrition for Contemporary Society**				
COURSE DESCRIPTION	This course is designed to give students, who are not entering the health career path but are interested in the subject and want to learn more about its applications, an introduction to the core concepts of human nutrition and their relationship to wellness in contemporary society. Students will be introduced to valid nutrition research principles, tools to plan a healthy diet, and evidence based healthy eating patterns. The six nutrient groups, as well as alcohol, energy balance and body composition, nutrition and fitness, consumerism and sustainability, food safety and technology, and global nutrition and malnutrition will all be related to wellness. Each student will perform a personal computerized diet analysis and draw valid conclusions to modify their diet.				
	YEAR 1 *FY14*	*YEAR 2* *FY15*	*YEAR 3* *FY16*	*YEAR 4* *FY17*	*YEAR 5* *FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	379	394	360	302	304
CREDIT HOURS PRODUCED	1,137	1,182	1,080	906	912
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	81%	88%	86%	85%	87%
FORM 13 STATUS (LIST SIGNATURE DATES AND INSTITUTIONS)	Western Illinois University 3/19/18, Illinois State University 2/7/18, Northern Illinois University 12/21/17				
COURSE TITLE	**BIO-104: Biotechnology and Society**				
COURSE DESCRIPTION	This course is designed to give students an introduction to biotechnology. Specifically, the course will address what biotechnology is and how it relates to everyday life. Students will explore current and relevant topics in				

	biotechnology through an inquiry and investigative based approach that will foster critical thinking about how biotechnology impacts society. Students will be introduced to such topics as DNA profiling, crime scene analysis, and the ability to detect whether food contains products from a GMO.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	(New course)				4
Credit Hours Produced					16
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students					100%
Form 13 Status (list signature dates and institutions)	Illinois State University 1/14/17, Western University Illinois 5/17/16, Elmhurst College 6/1/16				
Course Title	**BIO 105: Survey of Environmental Biology**				
Course Description	Examines ecological principles in relation to environmental problems. Emphasizes current environmental issues, human impact on earth's resources and possible solutions and courses of actions.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	52	49	99	154	116
Credit Hours Produced	156	147	297	462	348
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	80%	81%	59%	59%	61%
IAI Status (list code)	L1 905				
Course Title	**BIO 106: Plants and Society**				
Course Description	This course is an exploration of plants and their important connection to society. Primarily for non-majors, this course investigates how plants enrich our lives on a daily basis. Students will study the origin, diversity, growth/ husbandry, conservation, and ecological services of plants. This course focuses on ethnobotany; thus, students will learn how plants provide: medicine, spices, dyes, clothing, and food for human consumption. Hands-on laboratory and				

	greenhouse activities will cultivate an appreciation for plants and build a foundation for life-long learning.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	(New course) Course start date Spring 2019 with enrollment of 8 students. Scheduled to be offered again Fall 2019.				
Credit Hours Produced					
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students					
Form 13 Status (list signature dates and institutions)	Elmhurst College 6/1/16, Northern Illinois University 5/17/16, Western Illinois University 5/17/16				
Course Title	**BIO-108: Biology for Contemporary Society**				
Course Description	This course is designed to give non-science majors, who are not entering the health career path, an introduction to core concepts in biology that are highly relevant in today's society. Students will be introduced to the following biological principles: process of science, cell structure, basic chemistry, molecules of life, genetics, evolution, energy flow within ecosystems, and ecology.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	430	466	523	522	562
Credit Hours Produced	1,1720	1,864	2,092	2,088	2,248
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	85%	85%	81%	87%	86%
IAI Status (list code)	L1 900L				
Course Title	**BIO-110: Principles of Biology**				
Course Description	This introductory course is suggested for students who are pursuing a career in the health-care industry. As such, Principles of Biology (BIO-110) serves as the prerequisite for both Anatomy and Physiology, as well as Microbiology. This biological science class introduces the concepts of: scientific method, characteristics of life, taxonomy, general chemistry, biochemistry, cell structure and function, cellular metabolism and photosynthesis, genetics, evolution, plant and animal tissues, human systems, and ecological principles.				

	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	1,094	1,065	895	782	767
Credit Hours Produced	4,376	4,260	3,580	3,128	3,068
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	70%	73%	72%	75%	74%
IAI Status (list code)	L1 900L				
Course Title	**BIO-113: Molecular & Cellular Biology**				
Course Description	This is the first part of a two-semester biology sequence and includes an introduction to: general chemistry; biochemistry; cellular structure, function and processes; molecular genetics and biotechnology.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	76	73	89	60	58
Credit Hours Produced	304	292	356	240	232
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	63%	76%	69%	47%	75%
IAI Status (list code)	L1 910L				
Course Title	**BIO-114: Organismal Bio, Evolution, Ecology**				
Course Description	This is the second part of a two-semester biology sequence and includes an introduction to: structure and function of major groups of microorganisms, fungi, animals, and plants with an emphasis placed on mammalian tissues and systems, ecological principles, and evolutionary processes and relationships.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	10	23	15	16	12
Credit Hours Produced	40	92	60	64	48
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	60%	96%	100%	81%	83%

IAI Status (list code)	L1 910L				
Course Title	**BIO-115: Environmental Biology**				
Course Description	Examines ecological principles in relation to environmental problems. Emphasizes current environmental issues, human impact on earth's resources and possible solutions and courses of actions. Laboratory work includes indoor and outdoor activities and off-campus field trips.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	58	52	50	48	53
Credit Hours Produced	232	208	200	192	212
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	74%	82%	65%	58%	75%
IAI Status (list code)	L1 905L				
Course Title	**BIO-201: Principles of Nutrition**				
Course Description	This course is a study of the science of human nutrition for students entering the health professions. Nutrition research, professional and government nutrient standards, and tools to plan a healthy diet are introduced. The focus of study is on the essential macro and micronutrients, metabolism of the energy yielding nutrients, and energy and weight balance. The principles of nutrition and nutrient requirements are applied to health and wellness as well as prevention and intervention in chronic disease. Each student will perform a personal computerized diet analysis and draw valid conclusions to modify their diet in a scientific paper.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	(New Course for FY19)				
Credit Hours Produced					
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students					

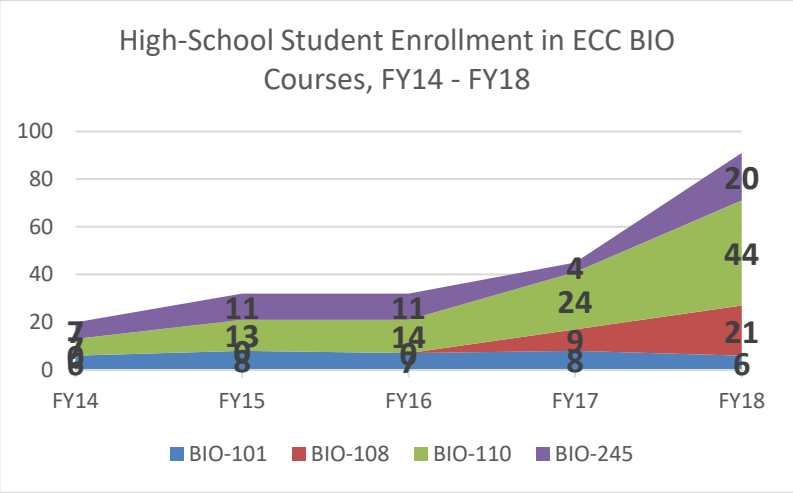
FORM 13 STATUS (LIST SIGNATURE DATES AND INSTITUTIONS)	Eastern Illinois University 12/5/17, University of Illinois Chicago 12/8/17, Western Illinois University 3/19/18				
COURSE TITLE	**BIO-234/235/236: Special Topics in Biology**				
COURSE DESCRIPTION	Designed to satisfy specific needs or interests of students and the community. The student should identify or obtain a special study topic and request approval/direction from one or more of the biological sciences' faculty. Student proposals should include a comprehensive outline of what will be done along with a timeline for completion. Guidelines used in selecting topics include: relevancy to biological fields of study; adequate and available material on special topic; and, topic will increase student skills and knowledge of biological sciences or related careers. (Variable Credit)				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	5	3	3	8	8
CREDIT HOURS PRODUCED	15	9	7	24	24
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	100%	100%	100%	100%	100%
FORM 13 STATUS (LIST SIGNATURE DATES AND INSTITUTIONS)	*Per Transferology on 7/01/19, course articulates to schools including Eastern Illinois University, Northern Illinois University, and Illinois State University*				
COURSE TITLE	**BIO-240: Human Anatomy and Physiology**				
COURSE DESCRIPTION	Study of ten major organ systems: integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, respiratory, digestive, urinary, and reproductive. Laboratory includes microscopic study of tissues, exploration of muscle physiology, determination of blood pressure and respiratory volumes, an exercise in blood typing, and dissection of sheep brain, sheep heart and cow eye. Studies include work with anatomical models and cadavers.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	105	71	48	44	34
CREDIT HOURS PRODUCED	525	355	240	220	170

Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	92%	84%	80%	80%	88%
Form 13 Status (list signature dates and institutions)	*Per Transferology on 7/01/19, course articulates to schools including Eastern Illinois University, Northern Illinois University, and Illinois State University Current Form 13s could not be located; course will be sent for re-articulation.*				
Course Title	**BIO-245: Human Anatomy and Physiology I**				
Course Description	First course in a two-semester sequence on Human Anatomy & Physiology. Designed for pre-health profession majors, especially those planning to transfer to four-year programs. Study of cell membrane, passive and active transport mechanisms, histology, general anatomical terminology and the following systems; integumentary, skeletal, muscular, and nervous. Laboratory topics include microscopy, passive and active transport, histology, bones, muscular anatomy, muscle physiology, reflexes, general senses, and neural anatomy. Laboratory exercises include working with tissue slides, skeletons (articulated and individual bones), sheep brain dissection, and use of various models. Cadaver demonstration and study is used for muscular anatomy, and both in-class and out-of-class cadaver time is required.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	417	432	501	417	431
Credit Hours Produced	1,668	1,728	2,004	1,668	1,724
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	85%	87%	88%	88%	90%
Form 13 Status (list signature dates and institutions)	*Per Transferology on 7/01/19, course articulates to schools including Eastern Illinois University, Northern Illinois University, and Illinois State University Outdated Form 13s on file from EIU, NIU, NEIU, SUIC; Course will be sent for re-articulation.*				
Course Title	**BIO-246: Human Anatomy and Physiology II**				
Course Description	Second course in a two-semester sequence on Human Anatomy & Physiology. Designed for pre-health profession majors, especially those planning to transfer				

	to four-year programs. The study of metabolism, electrolytes, acid/base balance, and the following systems: endocrine, cardiovascular, lymphatic, digestive, respiratory, urinary, and reproductive. Also included is the study of the special senses. Laboratory exercises include eye and heart dissections. Experiments include taking respiratory and cardiovascular data. Appropriate video demonstrations of cardiovascular disorders, immune system function and reproductive topics are also included. Cadaver demonstration and study is used for cardiovascular system and major organ systems. Both in-class and out-of-class cadaver time is required.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	333	360	401	384	378
Credit Hours Produced	1,332	1,440	1,604	1,536	1,512
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	94%	93%	91%	95%	92%
Form 13 Status (list signature dates and institutions)	*Per Transferology on 7/01/19, course articulates to schools including Eastern Illinois University, Northern Illinois University, and Illinois State University Outdated Form 13s on file from NIU, NEIU, SUIC, UIUC; Course will be sent for re-articulation.*				
Course Title	**BIO-252: Human Anatomy and Cadaver Dissection**				
Course Description	This course provides the participant the ability to expand their anatomical knowledge base, professional growth, and dissection skills. The participant will have the unique opportunity to dissect, within a small group, a cadaver and present visible structures to the instructor and their peers.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	(New course for FY19; previously ran as Special Topics)				
Credit Hours Produced					
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students					

FORM 13 STATUS (LIST SIGNATURE DATES AND INSTITUTIONS)	Eastern Illinois University 12/8/17, Western Illinois University 3/15/18, Northern Illinois University 12/13/17				
COURSE TITLE	**BIO-265: Microbiology**				
COURSE DESCRIPTION	This course provides students with a good understanding of microorganisms and an in depth focus on bacteria and viruses. It is designed for students intending to transfer as science majors, entering health programs, or those exploring careers in microbiology. It includes a full laboratory experience to develop skills in laboratory techniques, cultivation and evaluation of living organisms. An important focus of this course is the broad impact and relevance of microorganisms in our world, including the environment, industry, food microbiology, sanitation and health. Students learn properties and growth processes of microorganisms such as photosynthesis, fermentation, microbial genetics, and significance of genetic change, virulence, diseases transmission and immunology. Community health issues focus on specific pathogens, prevention and treatment of disease, antimicrobials, immunization, useful applications and procedures of recombinant biotechnology, ELISA and use of antibody treatments.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	330	266	317	355	307
CREDIT HOURS PRODUCED	1,320	1,064	1,268	1,420	1,228
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	89%	88%	89%	88%	89%
FORM 13 STATUS (LIST SIGNATURE DATES AND INSTITUTIONS)	*Per Transferology on 7/01/19, course articulates to schools including Eastern Illinois University, Northern Illinois University, and Illinois State University Outdated Form 13s on file from EIU, NIU, NEIU, SUIC; Course will be sent for re-articulation.*				
HOW DOES THE DATA SUPPORT THE COURSE GOALS? ELABORATE.	**ENROLLMENT** The overall enrollment at Elgin Community College has decreased 17% over the last five years, while the change for biology overall has been less steep – 10%, from 3,398 seats in 2014 to 3,057 in 2018.				

	The highest enrolled course is BIO-110: Principles of Biology which fulfills lab science requirements and is a prerequisite for the program's advanced courses. While it has shown a decrease in enrollment of 30% in the last five years, this can be attributed to a correlational increase in BIO-108. Biology for Contemporary Society was designed to be an alternative lab course for non-health and STEM students. BIO-240 Human Anatomy and Physiology has exhibited the greatest decrease (- 63%) over the review period. As discussed, this course fills a very specific need and the program is running one section each Fall and Spring semester. Most students are better served with the 245/246 two semester sequence which in comparison, have shown increases over the review period of 4% and 14% respectively. They offer a more thorough study of the human anatomy and physiology, are better paced, and provide better advantage when transferring to other colleges than BIO-240. BIO-105: Survey of Environmental Biology has shown the largest overall growth of 123% since 2014. This course is run more often in the online modality, and is filling a need for students to satisfy a life-science degree requirement. When looking at the data based on modality, a steady increase is seen in the enrollment in hybrid and online sections. Nonetheless, the offering of courses in these modalities is very limited. In the last five years, only BIO-105 was offered in the online modality (as well as traditional), while BIO-108, 110, 115, 245 and 246 were offered in the hybrid format (as well as traditional). The program is seeing an increase in the number of dual credit students in the BIO courses held on campus, with the Accelerate College program contributing to the expansion in FY18. Early analysis suggests these students are performing very well.



SUCCESS AND RETENTION

Overall, success and retention rates for biology courses are in line with college wide data, and in some cases, the rates are better than college wide. Course statistics and the program's own assessment data confirm that as students proceed through the sequence into higher-level biology coursework, higher success and retention rates are realized.

BIO-110, which is the course with the largest number of sections offered in the department, has one of the lowest success rate in the department, second only to BIO-113, which offers just two sections during regular semesters.

For some students, BIO-110 is their first exposure to college-level biological sciences and their level of preparation to undertake the rigor of this course could explain the success rate. Faculty are aware of these patterns and have been working towards a more consistent curriculum among all instructors to improve success and retention as discussed within this report. The interventions should also result in more accurate and reliable assessment data that can help identify specific areas for additional improvement focus.

The course with the lowest retention overall is BIO-113: Molecular and Cellular Biology, which is a majors course. Similar to 110, students struggle with the expectations and demands of this course, however, once they succeed in BIO-113 and progress to the second semester BIO-114, students demonstrate both higher success and retention.

	The course with the highest success rate in the five years that encompasses this report is BIO-236. This is a Special Topics course only offered to students that have completed the two semester A&P sequence with final grades no lower than a B. The topic was Gross Anatomy and Cadaver Dissection which as of FY19 has become its own stand-alone course, BIO-252. This course is not required as a requisite to transfer or graduate. The students that enrolled in this course did it because of their strong desire to increase their knowledge of the human anatomy and to learn anatomical dissecting techniques. Therefore these are highly motivated students and the success rate shows that. Putting BIO-236 aside, BIO-246: Human Anatomy and Physiology II has the highest success rate. As the second course in the sequence, students are prepared for the learning environment have learned how to be successful. For those enrolling because of a program requirement, they are also motivated to finish. Similar results are seen in BIO-265: Microbiology. Health students take this late in their time at the college, where success is paramount to finish their program. Data reflects that the traditional face-to-face modality has the highest percentage of success and retention, followed by hybrid and online, in that order (though only one course, BIO-105, is currently offered online). The hybrid model is not a fit for all students. Some students choose the hybrid modalities because it fits their schedule, not necessarily because is the best modality for them to learn. That could be one of the reasons that explains the slight difference in success rate among traditional and hybrid versions. BIO-115 is the exception in terms of success by modality. Data shows that the success rate in this course is much better in the hybrid modality with a 5-year average of 72% success, versus 61% in the face-to-face version. However, the success rate of the hybrid modality has declined continuously and should be monitored.
WHAT DISAGGREGATED DATA WAS REVIEWED?	Institutional Research regularly provides disaggregated data for course modality and for early college credit students, such as tech prep and middle college. ECC is a Leader College within Achieving the Dream. Under this membership, the *Student Success*

	Infrastructure coordinates data analysis and new initiatives from an equity mindset, and disaggregates institutional-level results for various focus populations based on race/ethnicity, program or enrollment type, etc. However, in most instances, this disaggregation is not done at the program level, though it may do so in the future, provided there are sufficient n-sizes to do so reliably. Across the college, faculty are very interested in closing achievement gaps and participate in institutional efforts to raise achievement for all students. On a more informal basis, some Biology faculty have requested disaggregated data from either the IR or Assessment offices to investigate how certain factors might influence course success, such as level of developmental math placement, years since last biology course, and attendance patterns at the Tutoring Center.
WERE THERE IDENTIFIABLE GAPS IN THE DATA? PLEASE EXPLAIN.	Such analysis has been used to calibrate the level of developmental math a student must be placed into to set appropriate pre-requisites for some BIO courses. Recently, analysis based on the students' program of study provided sufficient evidence to split Nutrition course into two separate courses, one for general education and one for health professions.
ACADEMIC COURSE REVIEW RESULTS	
Intended Action Steps Please detail action steps to be completed in the future based on this review with a timeline and/or anticipated dates.	**Next Year** • Launch and implement an on-line section of BIO-101, Fall 2019 (Janet Whitsitt) • Continue to monitoring the need for BIO-240 to establish the best structure to offer sections • Course assessments are scheduled for BIO-101 and BIO-115 (FA19) and BIO-105 (SU19) • BIO-108 faculty will continue to meet to revise the custom lab manual. (Dana Kurpius and Fred Vogt) • BIO-108 faculty will work on getting additional cell models and equipment for the labs. • BIO-110 faculty will work towards a more consistent curriculum among all instructors and monitor improvements in success and retention (Vogt, Qasmieh, Kurpius, and O'Sullivan–Spring 2020). **Next Five Years**

	• Monitor improvements in lab exam scores in BIO-240 based on course assessment intervention, "sketch and label" pre-lab assignments (Ginger Bohlen – Fall 2021). • Create a lab manual for BIO-245 and BIO-246 that can better line up with the lecture content and the models available for lab exercises (Luis Martinez – Fall 2022). • BIO-108 faculty will continue to meet to revise the curriculum (Fred Vogt, Dana Kurpius and Ed Kroll- Fall 2022). • Identify more students who can present novel research at the Skyway Competition. (Fred Vogt-Fall 2021)
Rationale Provide a brief summary of the review findings and a rationale for any future modifications.	The overall strength of this program is the result of the interplay of many factors, both individually and combined, including but not limited to: **Faculty:** The program is comprised of dedicated, highly knowledgeable, and well-respected faculty who strive constantly in their efforts to guide students towards success in the courses there are taking, and in their overall academic endeavors. Biology faculty members are very well updated in the latest trends and scientific developments in their respective discipline. Faculty consistently look at results/data from course level assessment and past program reviews recommendations to design strategies that will continue to improve student success and retention. **Staff:** The program is supported by dedicated staff who provide immeasurable support to faculty and students. They are an intricate factor in the strength and success of this program and its students. **Facilities and equipment:** Labs and classrooms in the new building are considered some of the most modern and well-equipped community colleges' biology labs. A full complement of instructional aides, such as models, supplies and equipment successfully support lab-based learning. Administration has provided essential support for the acquisition, updating and renewal of labs, classrooms and equipment.
Resources Needed	A weakness of the biology program is the lack of computer rooms available to run whole-class evaluation. Presently, only one computer room exists for the department which must be shared and coordinated among all biology courses and clinical lab programs, making it a restriction. The college markets biology very well for potential health care careers, however, little marketing for biology fields

outside of healthcare is cultivated. Some increase has been noted regarding a focus college-wide on STEM initiatives. During the Spring 2019 semester, the 4 semester and 6 semester biology pathways ("tracks") are being rolled out. Students wishing to pursue biology as a career and eventually go into fields of research and education are not well exploited, allowing interested community members to instead look towards 4 year universities to pursue such opportunities.

The department has a solid resource base of equipment, labs, classrooms and professionals to accomplish the activities inherit to our functions. Having said that, a critical resource need is the lab coordinator/assistant position.

- The department has one *part-time* lab manager in charge of all the lab preparation for all the BIO courses that require labs.
- Below we provide some data and analysis to illustrate the growth of the department in courses, sections and lab offerings over the last 20 years, and the need to add another lab manager position.

Year	# Courses	# Labs w/prep	# Sections/term
AY99	10	9	26
AY19	15	12	59

Year	# FT Fac	# PT fac	Lab Mgr	Lab Asst.
AY99	4	6	1	1-2
AY19	10	10	1	1-2

- So, over twenty years, the program has increased the number of faculty members and expanded the curriculum, but not added to the lab staff.
- Courses currently run 6 days a week, 7 a.m. to 10 p.m. on weekdays.
- The need for two lab managers is clear – someone full-time for the daytime and someone part-time for evenings and Saturdays.

Responsibility
Who is responsible for completing or implementing the modifications?

Faculty, Instructional Coordinator, Lab Manager and division administration will be involved at various levels. Lead faculty for some goals has been identified above.

Academic Disciplines	
COLLEGE NAME:	Elgin Community College
FISCAL YEAR IN REVIEW:	FY2019
DISCIPLINE AREA:	**Chemistry**
REVIEW SUMMARY Complete this section to review the Academic Discipline as a whole. Use the Course Specific Review portion of this template for each course reviewed in the Discipline.	
Program Objectives What are the objectives/goals of the discipline?	The over-arching learning outcomes for the Chemistry program are: • Correctly solve unit conversion, measurement, and algebraically demanding problems. • Correctly name inorganic and organic compounds and accurately describe properties of matter. • Correctly describe atomic structure and molecular theory (including ionic and covalent bonding, and reaction mechanisms). • Solve problems related to kinetics, equilibrium and thermodynamics. • Recognize and describe common household chemicals, medicines, petrochemicals, plastics and environmental chemistry.
To what extent are these objectives being achieved?	The program essentially offers a complete portfolio of classes: three general education classes, as well as a four-semester chemistry major sequence. Due to articulation agreements, courses are easily transferrable to four-year institutions. The program has maintained a fairly stable enrollment, as well as a moderately conservative scheduling attitude, and thus class cancelations are very rare, allowing students to complete what they need within the department to complete their goals.
How does this discipline contribute to other fields and the mission of the college?	Departmental courses contribute to the general education science and lab requirements of the associate degrees, and the pre-engineering options of the AES degree. All chemistry courses, except CHM-170, carry an IAI code. Additionally, CHM-101 and CHM-142 are components of the Clinical Lab

	Technology AAS, and CHM-112 and CHM-170 are part of the Histotechnology AAS. By nature of the material presented in the courses, frequent connections are made towards almost universal application of the field in everyday lives, households, industry and health care. As such, the Chemistry curriculum significantly contributes to the college's General Education learning outcomes, particularly Critical Thinking and Scientific Literacy.
Prior Review Update Describe any quality improvements or modifications made since the last review period.	**Implement Safety Training for the Department Personnel. All faculty will have the opportunity to take the safety training; The training can be opened to any college personnel for whom OSHA requires chemical handling training.** <u>Progress reported:</u> • FY15: All full-time and unit adjunct faculty have access to training module on the D2L platform. One non-unit adjunct instructor and a new work study student took and passed the training; new personnel are being trained. As far as current unit staff, lack of meaningful motivation (financial or otherwise) correlates with low participation rates. FY16: In FY16, three additional non-unit adjuncts took the safety training course. Counting only faculty/staff who engage in chemistry lab work, a total of 10 passed the safety training at one point, while seven have not. • Challenges: Keeping track of who should take the course and when is proving to be difficult as far as new personnel. If the funding to reimburse adjunct instructors was available, the participation rate could be higher. **Compilation of CHM-112 Instructor Manual Resource guide will be published.** <u>Progress reported:</u> • FY15: Limited didactic resources have been shared with new adjunct faculty. Compilation of detailed lab instructor notes would require a significant time commitment and corresponding budget resources. • FY16: Incremental progress. Some materials exist and have been distributed to new adjuncts. However, as of now, no steps have been made on

	compilation and getting "publish ready". New adjunct instructors were assisted in developing their courses. • Challenges: Unfortunately, the department experienced several disruptive events; the worst of them being a loss of power and facilities for over a week, plus month-long problems with malfunctioning lab safety equipment. Given the very limited manpower resources the department has at its disposal, the aforementioned emergencies had to take precedence over any other activity, this goal included. **Write, review and approve Standard Operating Procedures for all lab procedures, including other departments besides Chemistry.** <u>Progress reported:</u> • No steps taken **Consider options for implementing a campus-wide Chemical Hygiene Plan and the appointment of a Chemical Hygiene Officer (separate from the Instructional Coordinator and Lab Coordinator positions).** <u>Progress reported:</u> • A college-wide committee met regularly for several semesters to evaluate the topic. Program representatives participated on the committee. At this point, the issue hinges on a college-wide policy decision, and is no longer within the program's scope. **Begin a science club to increase engagement with science.** <u>Progress reported:</u> • No steps taken thus far. **An electronic lab manual will be redeveloped, assembled and made available to students on D2L platform for CHM-143, FY17.** <u>Progress reported:</u> • Beta version of CHM-143 lab manual being tested in Fall 2018 for subsequent edits/corrections.

REVIEW ANALYSIS Complete the following fields and provide concise information where applicable. Please do not insert data sets but summarize the data to completely answer the questions. The review will be sent back if any of the below fields are left empty or inadequate information is provided.	
Indicator 1: Need	**Response**
1.1 What mechanisms are in place to determine programmatic needs/changes for AA, AS, AFA, and AES academic programs? How are programmatic needs/changes evaluated by the curriculum review committee and campus academic leadership?	Institutionally, degree requirements are vetted through the faculty-led Curriculum Committee and approved proposals are forwarded to the Vice President. Within this proposal process, initiators are encouraged to review implications and discuss potential changes with the affected division's faculty and administration. Where relevant, data is provided by Institutional Research to inform discussion and decisions. Otherwise, program faculty assume ownership of course content as maintained on the formal course outline housed within CurricUNET and displayed within the college catalog. Changes follow an approval work flow which includes the Curriculum and Assessment department, the dean's office, Transfer Coordinator, Advising and the Curriculum Committee. Program faculty are encouraged to consult with others on specific details, such as for applicability of various basic skills pre-requisites in math and literacy, and for IAI or other transfer implications. Section syllabi are expected to reflect the current course description and learning outcomes.
1.2 How are students informed or recruited for this program?	The program's IAI offerings serve a wide variety of students in pursuit of their degrees. ECC academic advising plays the most important role, as it matches students with courses needed for their specific academic plans. Several sections of CHM-142/143 (General Chemistry I and II) have been offered as a dual credit arrangement, allowing high school students to satisfy prerequisites and, proceed to Organic Chemistry I and II (CHM 234/235). In the past several terms, these early college credit students have made a positive contribution to program enrollment.
INDICATOR 2: COST EFFECTIVENESS	***RESPONSE***

2.1 What are the costs associated with this discipline?	The costs associated with this department include faculty, instructional coordinator, lab coordinator and lab assistant salaries; instructional supplies; maintenance and other contractual services; and printing.
2.2 What steps can be taken to offer curricula more cost-effectively?	Salary and benefit costs have remained relatively stable over the past five years taking into account increases in faculty salaries. Operational costs, however, have decreased by nearly $30K over the last three years. This is due in part to conservative budgeting strategies and the use of data-driven projections for scheduling purposes. Savings have been realized as the Instructional Coordinator and Lab Coordinator learned more about the college's budgeting process. The department generated a profit in FY18 for the first time in the last five years. Because all courses contain a lab component, the cost of chemicals and disposal of waste weigh-in significantly. Therefore, the program has been transitioning to *micro-scale* experiments where possible. Besides savings on chemicals and wasted disposal, there has been a positive impact on lab safety as students are handling smaller quantities of hazardous materials. The program has increased scheduling flexibility to retain qualified adjunct instructors, realizing that there have been many times where very minor adjustments to course times allowed a current adjunct instructor to stay on, rather than requiring a new hire. This eliminated the extra expenses inherent to hiring, but the greatest impact has been a consistent quality: students more readily enroll in a course taught by teachers with a good track record, and this in turn has positively affected enrollment. Due in large part to efforts by the lab coordinator, the program has been able to decrease the stockpile of chemicals on hand with more accurate inventory records and just-in-time ordering of chemicals and supplies This minimizes the amount of chemicals needed to be disposed at the end of their shelf life, and provides the intangible (and hard to express in dollars) benefit of storing smaller quantities of hazardous materials at any given time.

2.3 Is there a need for additional resources?	Chemistry has a need for another full-time faculty position. Its adjunct to full-time faculty ratio is 3 to 1, while Biology, the most related discipline, has a ratio of 1:1. Despite the fact that the adjunct instructors are qualified and dedicated, this imbalance represents challenges in communication, coordination as well as performing departmental routines such as assessment, curriculum updates and quality improvement. Such out-of-the-classroom tasks are most efficient when there is a "critical mass" of full time faculty. Positive enrollment trends (aided by dual-enrollment expansion) will have a corresponding positive financial impact with fuller course sections. Adding and/or updating instrumentation will require additional funding. The large purchases made in the last few years were necessary to replace failing lab equipment. Should ECC wish to expand its STEM offerings and generate a stronger presence in the STEM fields, an additional full-time chemistry faculty member would be needed. Tutoring services available at convenient time slots are critical to the student success. At this point, they appear to be offered at adequate levels. However, more students are expected to use them, especially the new 1-on-1 unlimited tutoring. The program is concerned that tutoring services are able to match the demand, and are not cut for budgetary or other reasons.
INDICATOR 3: QUALITY	***RESPONSE***
3.1 Are there any alternative delivery methods of this discipline? (e.g. online, flexible-scheduling, accelerated, team teaching, etc.)?	The Chemistry program currently offers all sections in the traditional face-to-face format only. Previous attempts with a hybrid modality resulted in lo retention and success rates lower than acceptable to the faculty, even though they were generally in-line with the college averages for similar offerings. The program is not necessarily opposed to trying new methods to implement the modality again if there is student need. Difficulty lies in the lab component of all the courses. The obligation to be present on campus at a pre-determined time on a weekly basis may act as a deterrent to enrollment or attendance and retention. Perhaps creative scheduling could ameliorate this

	issue, e.g. four hour lab slot every two weeks may be more attractive than 2 hours every week.
3.2 If the college delivers the course in more than one method, does the college compare success rates of each delivery method? If so, how?	N/A
3.3 What assessments does the discipline use to measure full-time and adjunct instructor performance in the classroom?	All classroom evaluation processes are guided by the college's contracts with the faculty union, ECCFA, and the Faculty Evaluation Handbook. Techniques include observation and self-assessment. The Chemistry program offers an online chemical safety course, and is required of all new employees. This helps instructors not only to protect their own safety, but also to ensure lab activities are safe for students.
3.4 How does the discipline identify and support at-risk students?	Every course syllabus contains information about available support services, such as tutoring, disability or veteran services. It has been observed that what affects students' performance is their inability to juggle work, family and school responsibilities. Late afternoon and evening classes have large numbers of students arriving late, due to work/commute or other legitimate conflicts. This is where advising could bring forth a meaningful change by proactively assisting students to pick a realistic schedule, with enough buffer time to get from one activity to next. Once a problem becomes apparent in the class, it leads either to a withdrawal or a sub-standard grade.
3.5 To what extent is the discipline integrated with other instructional programs and services?	Chemistry is a component of the college's STEM offerings. As such, great care is taken within the division to create scheduling options that do not conflict for students. As mentioned, Chemistry relies on support provided to students from the Tutoring Center. If fact, behind mathematics, Chemistry was the next most common subject matter for students. To provide better service, subject tutoring has been relocated to Building M, close to the standard CHM classrooms, and the schedule was expanded to offer more consistent drop-in hours six days a week.

	The program is less integrated with those in the health professions areas than it had been in the past, as chemistry is being cut out as requirements, such as with Nursing.
3.6 What does the discipline or department review when developing or modifying curriculum?	Given the large adjunct to full time ratio, and a very small number of full time faculty, any discussions occur on as needed basis. There is no formal process, other than meetings prior to semester. After this time, any issues are discussed on ad hoc basis, averaging 2-3 week timeframe, with the actual faculty involved. Current topics have included student learning outcomes, scaffolding between sequenced courses, and strategies resulting from course assessment data.
3.7 When a course has low retention and/or success rates, what is the process to address these issues?	Discussion between the faculty will vary depending on hypothesized source of a potential root cause: • verifying that every section syllabus contains information about support services, such as tutoring, and proactively make new faculty aware of available support services • Distributing tutoring schedule, once it becomes available, to individual instructors with a request to communicate to students • If advanced course, discussion with department faculty teaching a prerequisite course, to verify what all topics are being adequately covered • Discussion with faculty from other department, e.g. math, to attempt to identify underlying problems Course assessment and other data analysis undertaken by the department has yielded some interesting findings for further study. One trend noted regardless of course, is that topics score lower when they require math than for those topics which are more descriptive. This, frankly, did not come up as a surprise. Within the more advanced courses, another trend is becoming noticeable. Topics which require *a combination* of two or more different methods of thinking, score significantly lower. For example, in CHM-142, outcome 1 (applied basic algebra) scored 88%, while outcome 3 (applied basic algebra, plus use of reading comprehension) scored at 68%. Additional analysis of these results did yield surprising findings.

By breaking down the scores based on the students' final grade in the course, a new pattern emerges.

Outcome	Overall score (%)	Avg score (%) grades A-C	Avg score (%) grades D-F
1	88	92	40
2	84	90	58
3	68	92	38
4	80	90	59
5	60	91	44

As illustrated above, students earning a successful A-C grade scored with nearly perfect consistency across all 5 outcomes. In contrast, it was lower and varying results for the unsuccessful students which pushed the overall average for two outcomes below the acceptable threshold. Possible strategies to act upon these results will be discussed in the Goals section of this report.

The next courses to be assessed are CHM-101 and CHM-112, and faculty plan to repeat this method of data analysis. With significant changes in the math curriculum and related prerequisites, the program will continue to carefully monitor learning outcomes which are quantitative in nature.

It is noted that just like with other departmental routines, hyper-adjunctization of the department is a major complicating factor in course assessment. Out of 7 different courses offered by the department, three are taught exclusively by adjunct instructors. The rest of the courses which are taught by one or more FT faculty are less of an issue, yet even here the communication can be challenging at times.

LIST ANY BARRIERS ENCOUNTERED WHILE IMPLEMENTING THIS DISCIPLINE.

Regarding retention, not all W's are alike: until the program has better information about reasons students drop their classes, it cannot be known whether dropping a class is something what needs "fixing", or simply something what needs to be respected as the student's moral choice. A new college process is being implemented that will begin collecting specific reasons for students dropping a course.

None of the program's courses have a higher D/F rate than the ECC average and thus this would have to be considered "acceptable". On the other hand, there is always room for improvement, and even one student getting D/F is one too many. Improving the success rate will have to be multi-pronged approach:

- Students should be absolutely clear on how much time, effort, and dedication a success in a high contact/credit-hour lab class requires. The fact that it is the students themselves who are responsible for their own success, is not emphasized enough. On both counts, advising will play an indispensable part.
- Students should be able, and expected, to draw on multiple perspectives and approaches. How helpful is the current paradigm, indoctrinating students that if they don't understand a topic the teacher went over twice in the class, the remedy is to talk to the same teacher during office hours? Tutoring will be an integral part of improvement. It is too early to judge if unlimited 1-on-1 tutoring will help to boost success rates and will be monitored.
- Main emphasis is to communicate with or to the student that a problem may be brewing. If these are attendance issues, instructors have an informal discussion with the student. When performance is at stake, steps taken range from informal discussion, recommendations of tutoring or other support services, to launching Spartan Alert.

DATA ANALYSIS FOR ACADEMIC DISCIPLINES

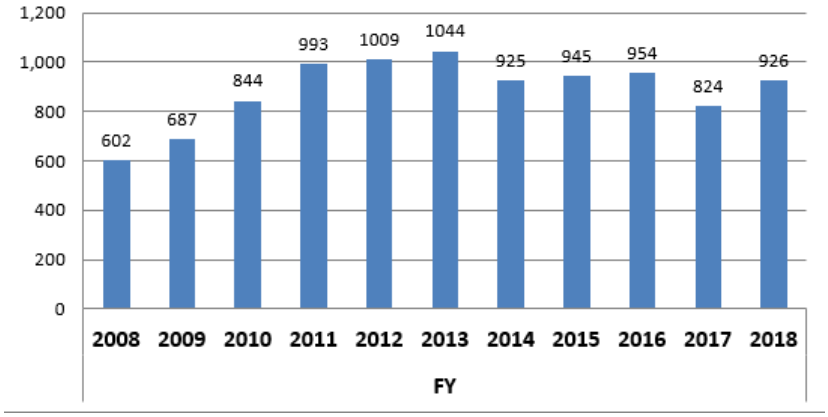
Please complete for **each course** reviewed in the Academic Discipline. Provide the most recent 5 year longitudinal data available.

ACADEMIC DISCIPLINE AREA	Chemistry				
COURSE TITLE	CHM-101: Preparatory Chemistry				
COURSE DESCRIPTION	This course introduces basic chemical knowledge to those with no chemical background or those who need a "refresher" course. It includes such topics as atomic structure, periodic table, formulae, chemical equations, stoichiometry, and gas laws. Class time includes lecture, laboratory, and question sessions. The course is primarily designed for general education requirements, as well as to prepare for higher level chemistry courses.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	166	179	194	162	180
CREDIT HOURS PRODUCED	830	895	970	810	900
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	88%	86%	87%	84%	89%
IAI STATUS (LIST CODE)	P1 902L				
COURSE TITLE	CHM-112: Elements of Chemistry: General				
COURSE DESCRIPTION	This course is designed as an introductory chemistry course for students preparing for nursing and other health professions programs. Topics covered include				

	measurements; states, compositions, and properties of matter; atomic structure and chemical bonding; chemical reactions, chemical equations and calculations of formula mass and moles; solutions; acid-base equilibria and nuclear chemistry.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	338	350	346	295	323
Credit Hours Produced	1,690	1,750	1,730	1,475	1,615
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	83%	82%	84%	83%	83%
IAI Status (list code)	P1 902L				
Course Title	CHM-142: General Chemistry I				
Course Description	The first course in a two-semester sequence in General Chemistry. Topics covered include fundamentals of chemistry including the periodic table of elements, atomic and molecular structure; basic concept of quantum theory, the gaseous state, stoichiometry of chemical reactions and solutions; heat and Enthalpy of reactions; and bonding. The course also emphasizes applications. Students will be exposed to the practical aspects of chemistry as they relate to the health sciences and the environment. The experiments of the companion lab are closely related to the course material and they will emphasize both qualitative and quantitative analysis. The course is intended for science majors, engineering and pre-professional students.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	247	258	243	234	270
Credit Hours Produced	1,235	1,290	1,215	1,170	1,350
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	79%	80%	83%	80%	83%
IAI Status (list code)	P1 902L (General Education) CHM 911 (Major)				

COURSE TITLE	CHM-143: General Chemistry II				
COURSE DESCRIPTION	Second course in a two-semester sequence of General Chemistry courses. The goal of this course is to provide the students with a broad overview of the principles of chemistry and to continue the introduction to many basic concepts of chemistry such as chemical kinetics; chemical equilibrium; Entropy and Free Energy; electrochemistry and redox reactions; orbital and spectroscopy; order and symmetry in condensed phases; chemistry of the main group and transition elements; and nuclear chemistry. Students will be exposed to the practical aspects of chemistry as they relate to the health sciences, industry, and the environment. Computer software is available to students to help them learn molecular modeling and graphing. The experiments of the accompanying lab are closely related to the course material and they will emphasize both qualitative and quantitative analysis.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	97	76	88	65	76
CREDIT HOURS PRODUCED	485	380	440	325	380
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	81%	82%	84%	86%	89%
IAI STATUS (LIST CODE)	CHM912				
COURSE TITLE	CHM-170: Elementary Organic Chemistry				
COURSE DESCRIPTION	Survey of organic chemistry covering nomenclature, structure, reactions, and synthesis of major classes of organic compounds including hydrocarbons, alcohols, aldehydes, ketones, carboxylic acid and amines, and covers how organic chemistry plays a key role in your life.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	42	39	38	36	44
CREDIT HOURS PRODUCED	210	195	190	180	220

Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	98%	100%	97%	89%	93%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	*Per Transferology on 7/01/19, course articulates to schools including Eastern Illinois University, Northern Illinois University, and Illinois State University*				
Course Title	CHM-221: Quantitative Analysis				
Course Description	Theory and practice of volumetric, gravimetric and instrumental methods of analysis.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	*Course not offered within review period*				
Credit Hours Produced					
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students					
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	*This course has not been offered in past 15 years and will be withdrawn.*				
Course Title	CHM-234: Organic Chemistry I				
Course Description	First semester of a two-semester organic chemistry sequence intended for chemistry majors and those enrolled in pre-professional training. Topics covered include the chemistry of alkanes, alkenes and alkynes, stereochemistry, alkyl halides, nucleophilic substitution and elimination, conjugation, and spectroscopy.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	19	23	24	19	21
Credit Hours Produced	95	115	120	95	105
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	89%	91%	100%	95%	100%
IAI Status (list code)	CHM 913 (Major)				
Course Title	CHM-235: Organic Chemistry II				
Course Description	Second semester of a two-semester organic chemistry sequence intended for chemistry majors and those enrolled in pre-professional training. Topics covered				

	include aromatics, alcohols, ethers, thiols, sulfides, carbonyl compounds, amines, synthetic polymers, and biomolecules.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	16	20	21	13	12
Credit Hours Produced	80	100	105	65	60
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	94%	90%	90%	85%	100%
IAI Status (list code)	CHM 914 (Major)				
How does the data support the course goals? Elaborate.	ENROLLMENT  As illustrated above, overall enrollment for Chemistry lagged behind the college's recession enrollment boom, peaking in 2013 instead of 2011. Since that time, the current review period seems to have returned to a stable "normal" level of students. The recent bump in 2018 can be attributed to the addition of more dual-credit high school students. CHM-112 is the course with highest enrollment, accounting for about one-third of all departmental credit hours. This is not surprising as CHM-112 has the most versatile applications: general education (lab) science credit, health professions, as well as a prerequisite and/ or refresher prior to starting General Chemistry sequence for science and engineering majors. CHM-235 Organic Chemistry II has the lowest enrollment, again, not surprising. It is the program's capstone of the 4-semester chemistry sequence. Large numbers of students just need General Chemistry I or II before transferring. A				

	few programs require only one semester of Organic Chemistry (CHM-234), whereas some require two semesters (CHM-234/ 235 sequence). Yet this course plays a vital role for those transfer majors requiring two semesters of Organic Chemistry – only the full sequence will transfer under IAI. Due to lower enrollment and need, a limited number of sections are scheduled for the advanced courses. Therefore, determining the best time slots for the sections is critical. The program has worked with other departments also serving these focused STEM students (Mathematics and Physics) to carefully tune them to avoid conflict with other required courses. Due to not being offered in many years, CHM-221: Quantitative Analysis will be slated for withdrawal. program review draft for APS/GEO/GLY <u>SUCCESS & RETENTION</u> With the exception of CHM-142, all success rates have been fairly consistent and slightly exceed college averages; retention rates are approximately equal to the college average. CHM-142 is a first course in CHM for science major sequence and it is conceivable that it is a "plunge into a cold water" for many students attempting it. It is rather difficult to decipher what might be a reason, as many different student cohorts merge at this point: Students who took adequate chemistry and math in the high school can enroll directly, students who have to take CHM and college algebra prerequisites at ECC or elsewhere, and students who may have spent several semesters catching up on developmental math. Yet, the "D and F" rate for this course is in line with departmental average. Thus, this would suggest that higher percentage of students are not ready to take the course and give up by dropping it.
WHAT DISAGGREGATED DATA WAS REVIEWED?	Institutional Research regularly provides disaggregated data for course modality and for early college credit students, such as tech prep and middle college. ECC is a Leader College within Achieving the Dream. Under this membership, the *Student Success Infrastructure* coordinates data analysis and new initiatives from an equity mindset, and disaggregates institutional-level results for various focus populations based on race/ethnicity, program or enrollment type, etc. However, in most instances, this disaggregation is not

	done at the program level, though it may do so in the future, provided there are sufficient n-sizes to do so reliably. Across the college, faculty are very interested in closing achievement gaps and participate in institutional efforts to raise achievement for all students. Chemistry had a significant dual credit enrollment for the past few semesters and there is opportunity to work with Institutional Research and the College Transitions division to further study their enrollment and success patterns. Departmental records indicate that in Fall 2017, 14 high school students were enrolled in CHM-142, and in Spring 2018 11 and 5 students in CHM-142 and 143, respectively. Anecdotal evidence from administration suggests that generally, these students are very successful in their college coursework.
WERE THERE IDENTIFIABLE GAPS IN THE DATA? PLEASE EXPLAIN.	Gap analysis has not been performed for students in Chemistry. As mentioned, an area of interest is to study student success based on level of math background and purpose for enrolling in the course (general education, STEM requirement, etc.)
ACADEMIC COURSE REVIEW RESULTS	
Intended Action Steps Please detail action steps to be completed in the future based on this review with a timeline and/or anticipated dates.	1. Develop a math advisory document • Compile a set of methods required in CHM-142 to communicate to instructors of CHM-101 and CHM 112 so they are aware of the exact expectations and can incorporate them within their classes. • AY19/20 • Drs. Trail and Rezac 2. Initiate compilation of lab preparation manual and related modifications to the student lab manual procedures • The manual will document lists of required materials, how they are to be presented (e.g. size and location of respective containers), as well as describe waste handling instructions. This will allow consistent lab preparation should additional lab personnel be involved. • The program also desires to integrate more instrumentation into lab activities, as graduates are expected to have proficiency in this area, and will consider adding it as a program learning outcome. • Due to the scope of this task, incremental progress is expected throughout FY20-FY24, with target for completion being Fall 2023. • Coordinator and Lab Manager

	3. Make progress toward re-training departmental faculty in chemical safety • Department developed a basic online safety course, which majority of faculty passed. As any safety training should be periodically repeated, departmental personnel should either start re-taking this course, or, should budgetary resources allow, could enroll in a more comprehensive outside course (e.g. one offered by Lab Safety Institute in an online format). • Due to the logistics and/or budgetary constraints, incremental progress is anticipated through FY24, at which point all faculty would should successfully take and pass one of the two courses. • Coordinator and Lab Manager
Rationale Provide a brief summary of the review findings and a rationale for any future modifications.	Maintaining enrollment and improving student success are top priorities. Despite Chemistry being removed as a pre-requisite from key programs (Nursing), the program has maintained a stable enrollment. While several areas for improvement have been identified, assessment of learning outcomes has been in-line with expectations. In general, regardless of a specific course, mathematical outcomes tend to have lower performance. In more advanced courses (CHM-142 in particular) it is evident that students from different sections of prerequisite courses were taught many different ways to solve problems. Some of these methods are poorly transferrable to more advanced courses. The first program goal outlined above will begin to address this concern.
Resources Needed	The entire division has gone through a decade and half of turmoil and instability. In as few as 15 years, it has been headed by as many as 7 different deans or acting deans, averaging a different administrator every two years. While the entire division needs stable, long term leadership to readjust its course, it is the smaller programs, chemistry included, which are particularly vulnerable to frequent leadership changes. As discussed within the body of the report, the program would benefit from an additional full-time faculty member not only to teach, but to support the important out-of-classroom work to be done.
Responsibility Who is responsible for completing or implementing the modifications?	As outlined with the goals, the Instructional Coordinator, Lab Manager, faculty and division administration will be involved at various levels.

Academic Disciplines

COLLEGE NAME:	Elgin Community College
FISCAL YEAR IN REVIEW:	FY2019
DISCIPLINE AREA:	**Engineering**

REVIEW SUMMARY

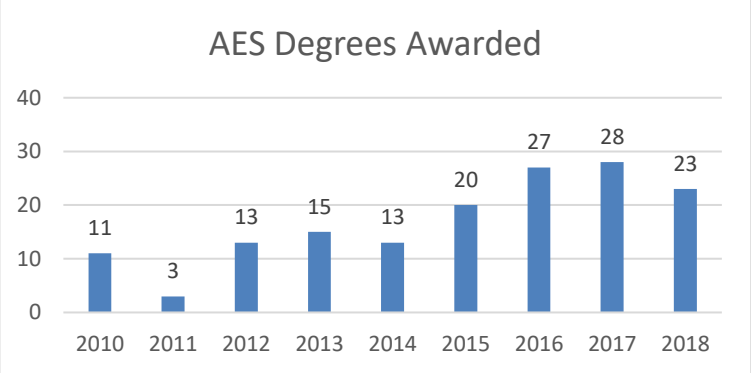
Complete this section to review the Academic Discipline as a whole. Use the Course Specific Review portion of this template for each course reviewed in the Discipline.

Program Objectives
What are the objectives/goals of the discipline?

The Associate in Engineering Science (AES) degree entails course work designed to parallel those offered during the first two years of pre-engineering programs at most Illinois universities and facilitates students transferring into a bachelor's engineering program with junior standing.

The objectives for the engineering program are in the areas of Technical Reasoning, Metrology, Data Analysis, Problem Solving and Communication. Upon completion of the AES degree, students will be able to:

- Describe basic engineering principles, theories, and related physical laws;
- Discern the role in and impact on engineering on society;
- Discuss the scope and limits on the appropriateness of scientific inquiry to engineering applications;
- Identify and properly use appropriate technologies for scientific inquiry including collecting and analyzing engineering data;
- Demonstrate critical observation and analysis;
- Employ quantitative reasoning appropriately while applying scientific methodology to explore engineering applications;
- Express engineering information, concepts, and thoughts in verbal and graphical form to solve engineering problems;
- Shift among communication modes verbal and graphical while engaged in problem solving;
- Extract quantitative data from a given situation, evaluate the information, abstract essential information, make logical deductions, and arrive at reasonable conclusions.

To what extent are these objectives being achieved?	The current coursework is appropriately mapped and sequenced to allow student mastery of the program outcomes upon completion. Students broaden and deepen their application of the scientific method, laboratory techniques, engineering principles and experimental techniques to observe engineering applications. Further, students develop problem solving and communication skills characterized by logic, critical evaluation, graphical analysis, and the written and oral reporting of engineering information. The quality of the current course offerings are excellent. Engineering instructors have several years of Engineering teaching experience, connections to local Engineering organizations, and backgrounds in either Engineering or Physics. The number of students earning the AES degree over the current review period (2014 – 2018) has grown over the prior five years. Additionally, Student Clearinghouse data prepared by Institutional Research demonstrates that ECC's engineering students progress most commonly to NIU, UIC and UIUC with the most common majors listed as Mechanical, Electrical and Civil Engineering. 
How does this discipline contribute to other fields and the mission of the college?	The Engineering program provides a specific degree opportunity for students, the Associate in Engineering Science Degree. Two of the foundation courses, EGR-152/252, also fulfill science requirements for the AS degree appealing to all STEM-focused students. EGR-101 Introduction to Engineering Design, is cross-listed with the Computer-Aided Design (CAD) and Computer Integrated Manufacturing programs. EGR-101 is managed and maintained by the SBCT division.

	Students in EGR-101 are also typically engaged in the engineering programs' courses and pathways. The new EGR course additions provide bridge opportunities for students pursing specific Bachelor's programs upon transfer. EGR-100 serves the pipeline on the entry side, introducing students to the various engineering fields and associated professional aspects. EGR-172 supplements EGR-152/252 with an additional materials engineering course primarily for students directed toward Mechanical and Civil engineering. EGR-192 is an engineering thermodynamics course with application across many fields of engineering including aerospace, chemical, and environmental among others. EGR-272/292 compliment electrical engineering programs upon transfer. The EGR coursework also significantly contributes to the college's General Education learning outcomes, particularly in the areas of Critical Thinking, Quantitative Literacy and even Global and Multi-cultural Literacy, by presenting global and universal perspectives and engineering challenges.
Prior Review Update Describe any quality improvements or modifications made since the last review period.	Within the prior review period, five new courses were added to the program's offerings to expand opportunity, meet student need, and improve student success upon transfer. Goals from FY14 report: Develop and implement four additional courses to meet student needs and improve student success here and upon transfer. • Progress Reported: Complete, EGR-172 Mechanics of Materials; EGR-192 Thermodynamics; EGR-272 Circuit Analysis and Theory; and EGR-292 Introduction to Digital Systems. In addition, a fifth course was added, EGR-100: Introduction to Engineering (2 credit hours). Apply for IAI designation for new courses. • Progress Reported: Designations updated for EGR-152/252; still to be pursued for new courses. Conduct feasibility study for dedicated STEM (EGR/PHY) study lab. • Progress Reported: This component of the Engineering program is still under consideration. The format and equipment list have been

	submitted. Challenges include space and equipment requirements as well as institutional budgetary constraints. Investigate tuition and fee structure between cross-listed courses EGR-101 and CAD-101. • Progress Reported: Completed by SBCT division.

REVIEW ANALYSIS Complete the following fields and provide concise information where applicable. Please do not insert data sets but summarize the data to completely answer the questions. The review will be sent back if any of the below fields are left empty or inadequate information is provided.	
Indicator 1: Need	**Response**
1.1 What mechanisms are in place to determine programmatic needs/changes for AA, AS, AFA, and AES academic programs? How are programmatic needs/changes evaluated by the curriculum review committee and campus academic leadership?	Institutionally, degree requirements are vetted through the faculty-led Curriculum Committee and approved proposals are forwarded to the Vice President. Within this proposal process, initiators are encouraged to review implications and discuss potential changes with the affected division's faculty and administration. Where relevant, data is provided by Institutional Research to inform discussion and decisions. Otherwise, program faculty assume ownership of course content as maintained on the formal course outline housed within CurricUNET and displayed within the college catalog. Changes follow an approval work flow which includes the Curriculum and Assessment department, the dean's office, Transfer Coordinator, Advising and the Curriculum Committee. Program faculty are encouraged to consult with others on specific details, such as for applicability of various basic skills pre-requisites in math and literacy, and for IAI or other transfer implications. Section syllabi are expected to reflect the current course description and learning outcomes. The Engineering program pays particular attention to the evolving requirements of destination transfer programs, such as the University of Illinois (UIC, UIUC). Within the review period, new courses were introduced, and IAI designations were updated for EGR-152: Statics and EGR-252: Dynamics. ECC now belongs to a unique cohort-based pathways agreement

	for Engineering students to transfer into the Engineering program at UIUC: http://bit.ly/2XwiON1. EGR-100 serves incoming STEM students in the decision making process related to their chosen engineering field of interest. EGR-100 introduces students to the various engineering fields and associated professional aspects.
1.2 How are students informed or recruited for this program?	The engineering program attracts incoming students with a strong STEM background and firm commitment of transferring to complete a 4-year engineering program. Enrollment is not expected to wane as STEM fields providing employment opportunities for engineers have seen dramatic developments over the past 20 years. These areas are expected to continue to attract student interest according to Occupation Outlook. Students pursuing an AES degree may also participate in a 2+2 program with one of many 4-year Illinois Universities including UIUC, UIC, NIU, and Bradley. Guaranteed admission to one of these 2+2 partner institutions upon AES completion at ECC is an effect recruitment and retention tool for the department.
INDICATOR 2: COST EFFECTIVENESS	***RESPONSE***
2.1 What are the costs associated with this discipline?	The costs associated with the engineering department include faculty salaries, instructional supplies, and printing, and are comparable to the other physical sciences.
2.2 What steps can be taken to offer curricula more cost-effectively?	The program is currently staffed by all adjunct instructors to effectively reduce program costs. A full time faculty in this area could be supported and would be a positive addition to the EGR department. The program schedules and runs efficiently, and the more established courses (EGR-152 and EGR-252) show enrollment close to capacity. Five new engineering courses have been launched: EGR-100, EGR-172, EGR-192, EGR-272, and EGR-292. Initially low enrollments in these courses will add to department costs, but with increased exposure and marketing it is hoped that the engineering program will become a successful focal area for the college.

2.3 Is there a need for additional resources?	The Engineering department has always shared a budget with Physics. A separate engineering budget was established for FY20, which will help to more accurately monitor department costs. A newly added departmental instructional supply line will meet short-term needs. The new engineering circuit courses (EGR-272 and EGR-292) being offered for the first time in 2019 will require additional supplies and equipment. The program continues to desire the creation of a dedicated STEM study lab for Engineering and Physics. Specifications and equipment lists have been submitted, but space and funding remain a challenge.
INDICATOR 3: QUALITY	***RESPONSE***
3.1 Are there any alternative delivery methods of this discipline? (e.g. online, flexible-scheduling, accelerated, team teaching, etc.)?	EGR courses are offered exclusively in the face-to-face format. D2L is used for communications and content distribution for all sections of Engineering, regardless of methodology.
3.2 If the college delivers the course in more than one method, does the college compare success rates of each delivery method? If so, how?	N/A
3.3 What assessments does the discipline use to measure full-time and adjunct instructor performance in the classroom?	All classroom evaluation processes are guided by the college's contracts with the faculty union, ECCFA, and the Faculty Evaluation Handbook. Techniques include observation and self-assessment. EGR courses are currently staffed exclusively by adjunct faculty.
3.4 How does the discipline identify and support at-risk students?	The department receives updated information from tutoring and other college support service areas and directly communicates this information to students. Tutoring availability and scheduling is updated regularly and retention alert utilized to ensure student success. EGR courses currently enjoy very high retention and success rates due to the motivated and prepared nature of the students it enrolls.
3.5 To what extent is the discipline integrated with other instructional programs and services?	The Engineering program integrates closely with Mathematics, Physics and Computer-Aided Design. One Instructional Coordinator manages both EGR and PHY, and works closely with all departments as well as the division Dean to ensure alignment and communication. The EGR curriculum is intertwined

	with required coursework from Physics, Computer Science and Mathematics. Faculty work closely to ensure proper STEM curriculum scaffolding, scheduling and efficient use of resources.
3.6 What does the discipline or department review when developing or modifying curriculum?	The dean and instructional coordinator analyze available data to determine ways to maximize retention and success including evaluating faculty performance and reassessing course outcomes. In addition to this, faculty and course assessment activities are ongoing to improve both instructor quality and student success. Particular attention is paid to transfer pathways and the requirements of destination programs. In this regard, faculty communicate with the Transfer Coordinator to stay current with respect to developments.
3.7 When a course has low retention and/or success rates, what is the process to address these issues?	The department priority is to maximize success and retention by hiring quality instructors and offering courses consistent with student needs as determined through enrollments and changing transfer program requirements. Opportunities to maximize retention and success are continuously sought using available data to identify areas for change. Challenges in this area are principally centered on finding ways to effectively train students in applied STEM areas. Additional access to online materials has allowed for more classroom content flexibility and peer instruction segments for our instructors.

LIST ANY BARRIERS ENCOUNTERED WHILE IMPLEMENTING THIS DISCIPLINE.

In addition to knowing about students' learning related to Engineering course-level outcomes, the faculty would like to gain insights into student study habits and their present day preferred methods for assimilation.

Another programmatic challenge is ensuring students are connected directly to an academic advisor as early as possible in their ECC career. The pre-engineering curriculum has many high credit-hour lab courses, and specific requirements and sequencing may vary depending on the student's intended engineering major (electrical, mechanical, etc.) and destination school. A sample guided transfer pathway document is appended to this report.

DATA ANALYSIS FOR ACADEMIC DISCIPLINES

Please complete for **each course** reviewed in the Academic Discipline. Provide the most recent 5 year longitudinal data available.					
ACADEMIC DISCIPLINE AREA	Engineering				
COURSE TITLE	EGR-100: Introduction to Engineering				
COURSE DESCRIPTION	Introduction to the study of and practices within the engineering profession. History of engineering, engineering specializations, engineering ethics, problem solving skills, design processes, professional practices, technical and written communications, and computer tools. ABET licensing and teamwork will be explored through discussion, readings, research, hands on projects, guest lectures, and seminars by practicing engineers from various fields.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	New course not yet offered during review period				
CREDIT HOURS PRODUCED					
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS					
IAI STATUS (LIST CODE) OR FORM 13 STATUS (LIST SIGNATURE DATES AND INSTITUTIONS)	University of Illinois Chicago 12/8/17, Northern Illinois University 1/3/18, Western Illinois University 3/19/18				
COURSE TITLE	EGR-101: Engineering Design Graphics (Cross-listed with CAD-101)				
COURSE DESCRIPTION	This course is an introduction to engineering design and graphics, including design problems, sketching, dimensioning, tolerancing, multi-view orthographic representations, auxiliary views, section views, and working drawings. Students are required to use CAD in this course. Sketching and CAD techniques are integrated in this course.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	81	85	75	63	51
CREDIT HOURS PRODUCED	324	340	300	252	204
SUCCESS RATE (% C OR BETTER) AT THE END OF THE	96%	89%	88%	90%	92%

COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS					
IAI STATUS (LIST CODE) OR FORM 13 STATUS (LIST SIGNATURE DATES AND INSTITUTIONS)	Illinois State University 12/4/17, Northern Illinois University 6/12/18, University of Illinois Chicago 11/30/17				
COURSE TITLE	EGR-152: Statics				
COURSE DESCRIPTION	Analysis of force systems by means of vector algebra and graphical methods, treatment of two and three dimensional static equilibrium; analysis of forces acting on members of trusses, frames, and pulleys; forces due to friction on inclined planes, belts and wedges; distributed forces, analysis of structures, determination of moments of inertia, and centroids and virtual work methods.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	30	22	24	43	36
CREDIT HOURS PRODUCED	90	66	72	129	108
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	88%	95%	100%	98%	100%
IAI STATUS (LIST CODE)	EGR 942 (Major)				
COURSE TITLE	EGR-172: Mechanics of Materials				
COURSE DESCRIPTION	Analysis of stress, strain and deflection in machine and structural elements (axial, shear, torsion and bending loads). Stress and strain transformation using Mohr's Circle. Combined loading, repeated loading, theories of failure, related mechanical properties, and column buckling. Design of shafts, beams and columns and elementary stress measurement devices.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	New course not yet offered within review period.				
CREDIT HOURS PRODUCED					
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS					

IAI Status (list code) or Form 13 Status (list signature dates and institutions)	Illinois State University 3/14/18, Northern Illinois University 12/12/17, Western Illinois University 3/19/18				
Course Title	EGR-192: Engineering Thermodynamics				
Course Description	Analysis of thermodynamic processes and systems. Properties of ideal and real gases and vapors in thermal systems. Zeroth, first and second laws of thermodynamics. Entropy, heat engines, power and refrigeration cycles.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	New course not yet offered during review period				
Credit Hours Produced					
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students					
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	Illinois State University 3/14/18, Northern Illinois University 12/12/17, Western Illinois University 3/19/18				
Course Title	EGR-252: Dynamics				
Course Description	A study of force and motion, including particle and rigid body kinematics in translation and rotation in a plane; relationships of force, mass, acceleration, work and energy, impulse and momentum.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	19	9	23	33	25
Credit Hours Produced	57	27	69	99	75
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	100%	100%	91%	100%	100%
IAI Status (list code)	EGR 943 (Major)				
Course Title	EGR-272: Circuit Analysis and Theory				
Course Description	Introduction to engineering circuit analysis and design. Topics include basic laws and concepts of linear circuits, analysis of direct current and alternating current circuits				

	by mesh and nodal analysis, the operational amplifier, the inductor and capacitor, transients analysis, phasors, impedance, average and root-mean-square values, power and transfer functions. Hands-on lab is included.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY16*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	New course not yet offered during review period				
CREDIT HOURS PRODUCED					
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS					
IAI STATUS (LIST CODE) OR FORM 13 STATUS (LIST SIGNATURE DATES AND INSTITUTIONS)	Illinois State University 3/14/18, Northern Illinois University 7/3/18, University of Illinois Chicago 12/8/17				
COURSE TITLE	EGR-292: Introduction to Digital Systems				
COURSE DESCRIPTION	An introduction to computer engineering. Digital circuit design with discrete and integrated circuit components. Binary arithmetic, codes, bases, number systems, logic elements and Boolean functions. Analysis and synthesis of combinational and sequential networks. Digital computer basics, machine level programming and microprocessors. Includes lab.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	New course not yet offered during review period				
CREDIT HOURS PRODUCED					
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS					
IAI STATUS (LIST CODE) OR FORM 13 STATUS (LIST SIGNATURE DATES AND INSTITUTIONS)	Illinois State University 3/14/18, Northern Illinois University 7/3/18, Western Illinois University 3/19/18				
HOW DOES THE DATA SUPPORT THE COURSE GOALS? ELABORATE.	<u>ENROLLMENT</u> Despite year-to-year fluctuation, enrollments for the past five years are trending upward, peaking slightly in FY 17, and surpassing levels seen in the preceding five years. At the course level, enrollments in EGR 152 were slightly higher than EGR 252, which experiences some attrition in the second semester of the sequence. Both courses will see				

	additional section offerings over the next five years as interest in the program grows and fine-tuning creates a solid schedule. Enrollments in the new courses will be monitored closely in the coming terms to ensure they are marketed and scheduled appropriately and meeting students' degree and transfer needs. SUCCESS & RETENTION Engineering course retention and success rates have consistently been higher than other transfer courses, and have been increasing over the past five years; often hitting 100%. This speaks well of student preparedness and motivation, as well as faculty ability to engage and inspire. Increased success may also be due to a stabilization of assigned instructors in the course sequence of 152 and 252. The program looks forward to additional success and progression with the expanded curriculum. COMPLETION (AES) As mentioned, the numbers of students earning the AES degree has been rising within the current review period as compared to the last review period. Other institutional data also supports strong completions. As part of Achieving the Dream, Institutional Research creates Program Success Rates, based on students in particular programs graduating, transferring, or remaining enrolled over a three year period (*ECC Program Review Pivot Tables, Tab 5*). Going back to 2011/2012, 72% of Engineering students fit the three-year success profile, compared to 69%% of AS students and 67% of AA students.
WHAT DISAGGREGATED DATA WAS REVIEWED?	Institutional Research regularly provides disaggregated data for course modality and for early college credit students, such as tech prep and middle college. ECC is a Leader College within Achieving the Dream. Under this membership, the *Student Success Infrastructure* coordinates data analysis and new initiatives from an equity mindset, and disaggregates institutional-level results for various focus populations based on race/ethnicity, program or enrollment type, etc. However, in most instances, this disaggregation is not done at the program level, though it may do so in the future, provided there are sufficient n-sizes to do so reliably. Across the college, faculty are very interested in

	closing achievement gaps and participate in institutional efforts to raise achievement for all students. An adjunct has done project work related to attracting more women to study in STEM fields, so gender data could be of potential interest, both in recruitment as well as ensuring comparable success and progression. While enrollment figures are small, the program sees approximately 17% female enrollment on average.
WERE THERE IDENTIFIABLE GAPS IN THE DATA? PLEASE EXPLAIN.	Beyond modality, formal gap analysis has not been performed for students in Engineering.
ACADEMIC COURSE REVIEW RESULTS	
Intended Action Steps Please detail action steps to be completed in the future based on this review with a timeline and/or anticipated dates.	• Configure labs, onboard new faculty, and roll-out new EGR courses, 19/20 • Pursue IAI approval for EGR courses, FA21 • Assess three year enrollment data SP22
Rationale Provide a brief summary of the review findings and a rationale for any future modifications.	The working plan for the next five years will focus on expansion opportunities as the newer courses become established and the program can discern a scheduling pattern that best suits student needs and which will maximize enrollments.
Resources Needed	Looking at the enrollment seats for the past ten years, a linear fit has enrollments doubling over the next ten years. With the addition of our new courses and within the backdrop of an Occupation Outlook forecast of increases at 7-13% in all engineering fields for the next 8 years, a realization of a comparable increase here at ECC would require additional faculty, facility space and laboratory equipment.
Responsibility Who is responsible for completing or implementing the modifications?	Divisional administration, Instructional Coordinator, and related faculty when available.

Academic Disciplines

COLLEGE NAME:	Elgin Community College
FISCAL YEAR IN REVIEW:	FY2019
DISCIPLINE AREA:	**Physical/Earth Sciences (APS/GEO/GLY)**

REVIEW SUMMARY

Complete this section to review the Academic Discipline as a whole. Use the Course Specific Review portion of this template for each course reviewed in the Discipline.

Program Objectives
What are the objectives/goals of the discipline?

APPLIED PHYSICAL SCIENCE

- Use the metric system to make measurements and do calculations.
- Perform calculations involving density.
- Identify how distance, time, velocity, and acceleration are related.
- Define what work, power, kinetic energy and potential energy are, how they are related and be able to do simple problems.
- Describe the structure and composition of atoms and be able to figure out atomic number and mass number.
- Complete reactions for radioactive decay and do half-life calculations.
- Describe the major features of the periodic table and use the periodic table to correlate and predict the properties of elements.
- Identify correct formulas of simple ionic and covalent compounds and use these formulas in balancing equations.

PHYSICAL GEOGRAPHY

- Demonstrate map skills.
- Describe Earth's systems and how Earth/Sun relations affect life on Earth.
- Describe layering of Earth, plate tectonics and its relationship to landforms.
- Explain how surface processes (weathering, streams, glaciers, etc.) produce various landscapes that are observed in the modern world.

GEOLOGY

	• Describe the earth's systems and the processes that shape our planet and affect our environment. • Evaluate causes and possible solutions to environmental problems such as groundwater purity, waste sites, flooding or other geological events. • Identify basic rock types and minerals. • Interpret maps and landscapes in a geologic context. • Appreciate the geologic history of Illinois specifically, and North America in general.
To what extent are these objectives being achieved?	Courses have been assessed within the college's assessment process. Instructional Coordinator monitors enrollment and scheduling needs. IAI codes are available for the following courses: APS-101, APS-111, GEO-115, GLY-105, and GLY-112. The courses offered at ECC are consistent with the introductory physical earth sciences (APS/GEO/GLY) courses offered at neighboring community colleges.
How does this discipline contribute to other fields and the mission of the college?	Courses within the physical earth science programs fulfill physical sciences requirements for the Associate in Arts, Associate in Science, and Associate in Fine Arts degrees and may be used to fulfill the math/science requirement for the Associate of Applied Science degree. These courses do not apply for the AES degree. Additionally, APS-101 Earth Science and APS-111 Applied Physical Science, GLY-112 Physical Geology fulfill the lab science requirements Courses in the physical earth sciences programs contribute to the college's goal of providing early college credit options to local high school students. This includes APS-101, GEO-115, GLY-105 and GLY-112 which all enroll a small percentage of high school students; APS-101 and GEO-115 currently participate in the Accelerate College program. Field trips within APS and GEO contribute to a specific tactic within the college's Strategic Plan: *Strengthen student learning connections outside the classroom.* Lastly, the courses all contribute to the General Education outcomes of the college, particularly Critical Thinking and Scientific Literacy.

Prior Review Update Describe any quality improvements or modifications made since the last review period.	APPLIED PHYSICAL SCIENCE • Further infuse global topics into the curriculum. Such examples include heat transfer, energy, and climate, and how different areas of the world are preparing for possible effects of climate change. • Develop a core set of materials to streamline projects, readings, classroom/lab activities and assessment: Four student projects were developed and compiled to increase students' active engagement; Department purchased a thermal camera, and Ms. Morrow used it for preliminary design and validation of several labs, which would incorporate newest technology and apply labs to everyday problems (e.g. investigating thermal leak from buildings). iPads were purchased and are used in several ways, such as infrared cameras, Earthquake news, Weather patterns, Astronomy, air pressure modeling, and as a decibel meter for exploring sound. • Infuse curriculum with local connections and relevance: Field trip now required, either a tour of Fermi National Accelerator Lab (with field guide question handout) or joining Geology class trips to Starved Rock area or Indiana Dunes. Climate change issues for Illinois discussed and progress in Solar and Wind power in the area. • Integrate more modern education resources to illustrate scientific principles: More video segments have been inserted into lectures. Internet research also part of labs/projects. PHYSICAL GEOGRAPHY • Continue digitization of graphic resources and incorporate online resources to support 'flipped classroom' pedagogy: Such activities initially proved more time-consuming than anticipated as the replacement of 35mm slides with comparable digital images is a task only faculty can do. However, over the review period, the availability of quality online resources has substantially increased and most resources have been obtained. • Advocate for full-time faculty member: this has been an ongoing desire over the past several years, and continues to be a need for the division.

	• Explore feasibility of offering a hybrid/online and Saturday sections of GEO-115: Current adjuncts would require additional training in D2L and online pedagogy. The amount of time required may be too much for an adjunct to do. GEOLOGY • Offer a second field trip each semester for GLY-112: Physical Geography: Due to availability of extra funds (FY16), the department offered two field trips in fall and spring semesters, one to Starved Rock State Park (traditional location), the second to the Indiana Dunes National Lakeshore (second location). Students had an opportunity to witness additional geological formation in real-life, as opposed to only from pictures. Students became engaged in active and exploratory learning with this 'hands-on' instruction. The trips have continued into FY19 with positive results and favorable responses from the student participants. • Revise course outcomes for GLY-105: Environmental Geology, and schedule regular course assessments: New outcomes created, effective Summer 2019. • Revise outcomes for GLY-101: Survey of Geology and revise assessment method: Updates made to course outline and assessment methods. • Develop virtual field trip for those not able to attend with the class: Faculty have incorporated information from the Starved Rock field trips into the summer section of GLY-112 to give students a simulated field experience. • Continue digitization of graphic resources: Accomplished. • Explore feasibility of offering hybrid GLY course: An adjunct has begun D2L training (SU18) as a first step. • Develop new transferable Historical Paleontology course: No longer a priority.

REVIEW ANALYSIS

Complete the following fields and provide concise information where applicable. Please do not insert data sets but summarize the data to completely answer the questions. The review will be sent back if any of the below fields are left empty or inadequate information is provided.

Indicator 1: Need	**Response**
1.1 What mechanisms are in place to determine programmatic needs/changes for AA, AS, AFA, and AES academic programs? How are programmatic needs/changes evaluated by the curriculum review committee and campus academic leadership?	Institutionally, degree requirements are vetted through the faculty-led Curriculum Committee and approved proposals are forwarded to the Vice President. Within this proposal process, initiators are encouraged to review implications and discuss potential changes with the affected division's faculty and administration. Where relevant, data is provided by Institutional Research to inform discussion and decisions. Otherwise, program faculty assume ownership of course content as maintained on the formal course outline housed within CurricUNET and displayed within the college catalog. Changes follow an approval work flow which includes the Curriculum and Assessment department, the dean's office, Transfer Coordinator, Advising and the Curriculum Committee. Program faculty are encouraged to consult with others on specific details, such as for applicability of various basic skills pre-requisites in math and literacy, and for IAI or other transfer implications. Section syllabi are expected to reflect the current course description and learning outcomes.
1.2 How are students informed or recruited for this program?	Academic advisors are a primary recruitment driver for APS/GEO/GLY courses as well as new student orientation. The courses fulfill a science requirement and appeal to non-science majors. Some coursework is also available within Dual Credit programs for high school students.
INDICATOR 2: COST EFFECTIVENESS	***RESPONSE***
2.1 What are the costs associated with this discipline?	The costs associated with APS/GEO/GLY include adjunct salaries, instructional supplies, printing, and travel expenses for field trips each semester. These programs utilize adjunct faculty exclusively and the budgets are very lean.
2.2 What steps can be taken to offer curricula more cost-effectively?	The costs for APS/GEO/GLY are minimal compared to other programs at the college and have been stable over the review period with no large purchases.

2.3 Is there a need for additional resources?	A persistent challenge in this program is the lack of a dedicated faculty member to monitor issues such as enrollment and cost. Beginning in FY2020, an adjunct GLY faculty will assume the instructional coordinator role for the physical science programs. It is hoped this addition will allow insight into needs, and potential areas of growth will come to light. A full-time faculty member for the departments of APS/GLY/GEO would be welcomed. To the best of our knowledge, other than Kishwaukee College, ECC is the only community college in the area that does not have at least one full-time Earth Science faculty member. Short term, the APS and GEO courses either need to tie-in to a possible existing weather station on ECC's campus or acquire one for use in instruction. Both classes have a meteorology component, and access to (very) local weather conditions would enhance instruction in this area. Plus, this would be a minimum requirement for a possible Meteorology course that could be developed and offered here. A seismograph station would be a very useful addition to enhance the instruction of the seismology sections of APS, GEO and GLY, and could be used in a permanent display as an enticement to students to enroll in the Earth Sciences. Some of the necessary equipment and supplies for a lab-based Earth History class are already in place, though a faculty person would be needed to develop the class and ensure transferability and accreditation.
INDICATOR 3: QUALITY	***RESPONSE***
3.1 Are there any alternative delivery methods of this discipline? (e.g. online, flexible-scheduling, accelerated, team teaching, etc.)?	GLY-101 is the only course currently offered online, and is available exclusively in that format. Sections of the other courses are offered in the traditional face-to-face format in both day and evening time slots. Online programming is being explored as a way to provide more flexible scheduling and degree completion options for students. The lab courses of APS-101 or APS-111 have been identified as first priority possibilities, though GEO-115 and GLY-105 could also be explored for future online development.

3.2 If the college delivers the course in more than one method, does the college compare success rates of each delivery method? If so, how?	Enrollment, success and retention data from Institutional Research is disaggregated by modality. Programs are also given college averages for face-to-face, hybrid, and online sections of transfer and career-technical programs for benchmarking. Generally, success rates in online sections are somewhat lower than in face-to-face, but this is not always the case. GLY-101 Survey of Geology, is only offered in the on-line format, so while it cannot be compared to itself in a different modality, it is compared to the other courses within the physical sciences for enrollment, retention and success.
3.3 What assessments does the discipline use to measure full-time and adjunct instructor performance in the classroom?	The physical earth science departments of APS, GLY and GEO are staffed solely by adjunct faculty. All classroom evaluation processes are guided by the college's contracts with the faculty union, ECCFA, and the Faculty Evaluation Handbook. Techniques include observation and self-assessment.
3.4 How does the discipline identify and support at-risk students?	Faculty recommend tutoring services, and use the Spartan Alert system to connect them with additional college support.
3.5 To what extent is the discipline integrated with other instructional programs and services?	The programs of Applied Physical Science, Physical Geography and Geology are considered as a subset of departments within the Health Professions, Math, Science and Engineering division, and had been overseen by a singular Instructional Coordinator who is full-time Chemistry faculty with primary responsibilities for that program. An umbrella Instructional Coordinator position will be implemented in summer 2020 for the physical earth sciences subset which will help solidify their contributions to the sciences within the HP-MSE division of the college. A current adjunct teaching in the discipline will assume this role.
3.6 What does the discipline or department review when developing or modifying curriculum?	With the program being staffed solely by adjunct faculty, it is challenging to do anything with them as a group. The new coordinator position will help ensure curricular consistency in terms of course outlines, learning outcomes and assessments, as well as scheduling and enrollment.
3.7 When a course has low retention and/or success rates,	Without a full-time faculty member over the departments of APS/GEO/GLY, responsibility is left to individual adjuncts to respond to the specific students

what is the process to address these issues?	in their sections, term by term. Generally, success and retention rates in the standard face-to-face sections consistently meet or exceed college averages for introductory transfer courses. The exception is for the online sections of GLY-101. Although an on-line course format is very attractive to students in regards to their work/life balance, many students have no idea how to be successful or the amount of outside work and effort required for the modality which leads to lower retention and success.

LIST ANY BARRIERS ENCOUNTERED WHILE IMPLEMENTING THIS DISCIPLINE.

APS, GEO, and GLY courses are all taught by adjunct faculty members which makes it challenging to get together and discuss the curriculum, success rates, assessment protocols and results, etc. as these instructors are teaching at multiple colleges. However, their extensive educational, employment and professional backgrounds are assets to ECC.

As discussed above in the Cost section, an Instructional Coordinator over these areas will be implemented to help address the issues identified within this review. In lieu of a full-time faculty position (which is preferred), it is hoped this extra layer of oversight will suggest new scheduling strategies that may promote additional enrollment among other improvements and enhancements.

DATA ANALYSIS FOR ACADEMIC DISCIPLINES

Please complete for **each course** reviewed in the Academic Discipline. Provide the most recent 5 year longitudinal data available.

ACADEMIC DISCIPLINE AREA	Applied Physical Science				
COURSE TITLE	APS-101: Earth Science *formerly APS 211 Earth Science*				
COURSE DESCRIPTION	A holistic physical science approach to the study of earth science using basic chemical and physical science principles. The course will be a non-quantitative survey of astronomy, oceanography, meteorology and geology. (1.1) Fulfills the ECC/IAI General Education/Physical Sciences requirement.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	23	43	115	200	240
CREDIT HOURS PRODUCED	92	172	460	800	960
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	78%	93%	94%	90%	89%
IAI STATUS (LIST CODE)	P1 905L				

COURSE TITLE	APS-111 Applied Physical Science				
COURSE DESCRIPTION	General course dealing with fundamentals of physical science using lectures, demonstrations and laboratory exercises. Emphasis is on physics, chemistry, and earth science topics that relate to everyday life and current events/issues. This is a survey course and it is not intended for science majors.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	162	161	150	94	84
CREDIT HOURS PRODUCED	648	644	600	376	336
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	88%	91%	97%	87%	88%
IAI STATUS (LIST CODE) OR FORM 13 STATUS	P9 900L				
COURSE TITLE	APS-290: Physical Science: Special Topics				
COURSE DESCRIPTION	Designed to satisfy specific needs of students and the community. The following guidelines are to be used in selecting topics: 1) adequate and available materials on special topics and 2) course will increase skills and knowledge of physical science (chemistry, physics, geology, and physical geography.)				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	(Course has not run during review period, consideration will be made for its withdrawal)				
CREDIT HOURS PRODUCED					
SUCCESS RATE					
IAI STATUS (LIST CODE) OR FORM 13 STATUS (LIST SIGNATURE DATES AND INSTITUTIONS)	Illinois State University 1/14/17, Northern Illinois University 10/18/16, Eastern Illinois University 10/12/16				
ACADEMIC DISCIPLINE AREA	Geography				
COURSE TITLE	GEO-115: Intro to Physical Geography				
COURSE DESCRIPTION	A survey of the physical environment and its effects on humanity. Topics include weather, climate, winds, rivers, oceans, earthquakes, volcanos, and glaciers.				

	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	189	197	163	147	148
Credit Hours Produced	567	591	489	441	444
Success Rate	90%	91%	89%	84%	80%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	P1909				
Academic Discipline Area	Geology				
Course Title	GLY-101: Survey of Geology				
Course Description	Introductory lecture course in historical and physical geology covering nature and properties of the materials composing earth, distribution of materials throughout the globe, processes by which they are formed, altered, transported and distorted.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	64	61	65	49	56
Credit Hours Produced	192	183	195	147	168
Success Rate	87%	65%	64%	81%	63%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)					
Course Title	GLY-105: Environmental Geology				
Course Description	A non-technical survey of geological phenomena that relate directly to our present and future environmental problems. Includes natural hazards such as earthquakes and flooding. Deals with society related concerns such as waste disposal and resource depletion. Much emphasis on energy-related topics.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	127	136	167	197	196

Credit Hours Produced	381	408	501	591	588
Success Rate	91%	93%	83%	85%	86%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	P1 908				
Course Title	GLY-112: Physical Geology				
Course Description	Introductory course in historical and physical geology covering nature and properties of materials composing the earth. Includes studies and observations of the distribution of materials throughout the globe and processes by which they are formed, altered, transported and distorted. An all-day field trip or equivalent project is required.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	158	169	118	84	90
Credit Hours Produced	632	676	472	336	360
Success Rate	88%	90%	86%	88%	78%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	P1 907L				
Course Title	GLY-220: Vertebrate Paleontology Field Method				
Course Description	This course would apply classroom lessons in physical geology in the field of vertebrate paleontology. Students would travel with the instructor from Elgin, IL to Hanksville, UT. During the trip, many stops will be made to note changes in geology across the American Great Plains, through Iowa and Nebraska, to Colorado and Utah with discussions of global climate and geological changes throughout time. In Hanksville, the class will learn hands-on methods of prospecting, locating, and properly excavating late Jurassic-age dinosaur fossils with the highly experienced field crew from the Burpee Museum of Natural History from Rockford, IL. The course includes classroom discussions before and after the trip, with the field trip lasting approximately 8 days. The classroom				

	portion of the course will require reading certain necessary manuscripts to facilitate discussion. Students must successfully pass all evaluation tools (exams, quizzes) in the pre-trip part in order to be allowed to participate in the trip. Students are required to complete a post-trip project based on the information learned in the classroom and field. Additional requirements: Due to the nature of the field work, students must be medically fit to participate in a moderately demanding physical activity at elevated temperatures. Due to safety consideration of work in the in quarry, students must be able to move unassisted on slightly uneven terrain.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	(Course has not run during review period, consideration will be made for its withdrawal)				
CREDIT HOURS PRODUCED					
SUCCESS RATE					
IAI STATUS (LIST CODE) OR FORM 13 STATUS (LIST SIGNATURE DATES AND INSTITUTIONS)	(Course to be withdrawn)				
HOW DOES THE DATA SUPPORT THE COURSE GOALS? ELABORATE.	<u>ENROLLMENT</u> In general, there has been an increase in the number of students taking APS courses over the last five years. APS 101 has the highest enrollment, fulfilling a lab science requirement with no math prerequisites and most likely appeals to non-science majors. It has grown from two sections a few years ago to five sections scheduled for Fall 2019. In general, the number of students taking GLY and GEO courses has declined over the past five years with the exception of GLY-105. APS-101 is thriving, having gone from two sections a few years ago to five sections for Fall 2019. This seems to have come at the expense of GLY-112 which has gone from four sections to two. Both are lab credit classes, but the course description specifies that GLY has a required all-day field trip outside of class time, which could discourage enrollment. <u>RETENTION & SUCCESS</u> Course success and retention rates have been consistent with the Physical Sciences average for traditional modalities over the past five years. Retention rates for GLY-101 are lower,				

	which is the typical pattern for online offerings, though current rates are slightly below the college's online average.
WHAT DISAGGREGATED DATA WAS REVIEWED?	Institutional Research regularly provides disaggregated data for course modality and for early college credit students, such as tech prep and middle college. ECC is a Leader College within Achieving the Dream. Under this membership, the *Student Success Infrastructure* coordinates data analysis and new initiatives from an equity mindset, and disaggregates institutional-level results for various focus populations based on race/ethnicity, program or enrollment type, etc. However, in most instances, this disaggregation is not done at the program level, though it may do so in the future, provided there are sufficient n-sizes to do so reliably. Across the college, faculty are very interested in closing achievement gaps and participate in institutional efforts to raise achievement for all students.
WERE THERE IDENTIFIABLE GAPS IN THE DATA? PLEASE EXPLAIN.	Beyond modality, gap analysis has not been performed for students in the earth sciences departments.
ACADEMIC COURSE REVIEW RESULTS	
Intended Action Steps Please detail action steps to be completed in the future based on this review with a timeline and/or anticipated dates.	• Advocate for a full-time faculty member in the Earth Sciences (APS/GEO/GLY), AY19/20; continue for upcoming review period until accomplished • Monitor success rates in online GLY-101 in conjunction with development of an online APS-101 option. • Increase marketing efforts to promote Earth Sciences as a science credit option at ECC, AY 20-25 • Develop additional field trips for GLY-112 to expand options, AY 20-25 <u>Curricular Goals</u> • Complete APS-101 course assessment, FA19 • Submit APS-111 for IAI re-certification, FA 19 • Explore developing online formats for: APS-101 or APS-111 FA 19, and GEO-115, SP 20 • Recommend withdrawal of GLY-220, APS-290
Rationale Provide a brief summary of the review findings and a rationale for any future modifications.	The APS/GEO/GLY areas have not been touched since the last program review due to turnover in administration of the division and the absence of a full-time faculty member necessary to encourage innovation. It is hoped that the introduction of an instructional coordinator dedicated to these

	areas in the upcoming academic year may help to strengthen course offerings. This program review as well as an online initiative currently underway at the college have promoted inquiry into the development of online options in APS/GEO/GLY.
Resources Needed	While a dedicated Instructional Coordinator is a welcome addition, a full-time faculty is sorely needed to lead the APS/GEO/GLY departments and focus the direction of the program. As mentioned within this report, student learning could be enhanced with additional technology to support the program such as weather stations and a seismograph station.
Responsibility Who is responsible for completing or implementing the modifications?	Divisional administration, the newly appointed Instructional Coordinator, and related faculty when available.

Academic Disciplines	
COLLEGE NAME:	Elgin Community College
FISCAL YEAR IN REVIEW:	FY2019
DISCIPLINE AREA:	**Physics**
REVIEW SUMMARY Complete this section to review the Academic Discipline as a whole. Use the Course Specific Review portion of this template for each course reviewed in the Discipline.	
Program Objectives What are the objectives/goals of the discipline?	The learning outcomes across all courses in the department cover the topics of: Scientific Reasoning, Metrology, Data Analysis, Problem Solving and Communication. Upon completion of Physics coursework, students will be able to: • Discuss and apply the scientific method, • Discuss and employ laboratory techniques, • Describe physical principles, • Describe and utilize experimental design to model natural phenomena, • Utilize logic, critical evaluation, numeric and graphical analysis, symbolic manipulation, and the written and oral reporting of scientific information to solve problems and communicate scientifically.
To what extent are these objectives being achieved?	STEM fields have seen dramatic developments over the past 20 years that have changed our perceptions of the world. These areas will continue to attract student interest according to Occupation Outlook. Physics enrollments for the past five years were trending upward, peaking slightly in the last two years at increased levels beyond the preceding five years. The quality of the current course offerings are excellent. Physics instructors have several years of Physics teaching experience, connections to local Physics organizations, and backgrounds in either Materials Science or Particle Physics. The department priority is to maximize success and retention by hiring quality instructors and offering courses consistent with student needs as determined through enrollments and changing transfer program requirements. In addition to this, faculty and course

	assessment activities are ongoing to improve both instructor quality and student success.
How does this discipline contribute to other fields and the mission of the college?	The program's curriculum is comprised of foundation physics/engineering transfer program courses fulfilling degree requirements for the AES, and science requirements within the AA/AS degrees. Courses have IAI articulation codes for general education and the major. PHY courses also significantly contribute to the college's General Education outcomes, particularly in the areas of Critical Thinking and Scientific Literacy.
Prior Review Update Describe any quality improvements or modifications made since the last review period.	• The previous Physics course sequence (PHY-111/112/113) was transitioned into three new courses (PHY-211/212/213) to better partition the content into three full semesters to improve student success and transfer. They first appeared in the 2018/2019 catalog. • The program has expanded collaborative learning methods in the classroom, including lab exercises with peer-peer collaborations. • Two new courses have been created for specific transfer to University of Illinois – Urbana Champaign; PHY-215: Thermal Physics and PHY-216: Quantum Physics are both 2 credits, and are being offered for the first time in summer 2019.

REVIEW ANALYSIS

Complete the following fields and provide concise information where applicable. Please do not insert data sets but summarize the data to completely answer the questions. The review will be sent back if any of the below fields are left empty or inadequate information is provided.

Indicator 1: Need	**Response**
1.1 What mechanisms are in place to determine programmatic needs/changes for AA, AS, AFA, and AES academic programs? How are programmatic needs/changes evaluated by the curriculum review committee and campus academic leadership?	Institutionally, degree requirements are vetted through the faculty-led Curriculum Committee and approved proposals are forwarded to the Vice President. Within this proposal process, initiators are encouraged to review implications and discuss potential changes with the affected division's faculty and administration. Where relevant, data is provided by Institutional Research to inform discussion and decisions. Otherwise, program faculty assume ownership of course content as maintained on the formal course outline housed within CurricUNET and displayed

	within the college catalog. Changes follow an approval work flow which includes the Curriculum and Assessment department, the dean's office, Transfer Coordinator, Advising and the Curriculum Committee. Program faculty are encouraged to consult with others on specific details, such as for applicability of various basic skills pre-requisites in math and literacy, and for IAI or other transfer implications. Section syllabi are expected to reflect the current course description and learning outcomes. The standard physics courses fulfill General Education course requirements, and the advanced courses provide opportunity for AES students with specific transfer plans. These are discussed within the department and division, and then with the Transfer Coordinator, Advising and Curriculum Committee. Enrollment has increased over the review period and is up nearly 10% from five years ago.
1.2 How are students informed or recruited for this program?	The program's courses attract incoming students with an interest in STEM related topics and those pursuing further technical study. The US Department of Labor indicates a physics engineering job growth rate increasing by 10 % into year 2022 (Bureau of Labor Statistics). The program enrolls current high school students, has established 2+2 agreements with transfer partners, and has additional Pathways under consideration.
INDICATOR 2: COST EFFECTIVENESS	***RESPONSE***
2.1 What are the costs associated with this discipline?	The costs associated with the physics department include faculty salaries, instructional supplies, and printing. These costs are comparable to other physical science areas.
2.2 What steps can be taken to offer curricula more cost-effectively?	Currently, the program employs one full-time instructor and four adjunct instructors to effectively deliver instruction and reduce program costs. The physics program runs efficiently and classes are close to full each semester. Few major equipment purchases over the past four years and the use of part-time instructors for several courses have kept program costs low.

2.3 Is there a need for additional resources?	Departmental instructional supply lines are currently meeting short-term needs. A full time faculty in this area could be supported and would be a positive addition to the PHY/EGR/ATY department. Additional monies for lab equipment and upgrades will be helpful in promoting student success. Implementation of modern physics labs will add an additional laboratory dimension to the Physics program in the form of active, hands-on learning.
INDICATOR 3: QUALITY	***RESPONSE***
3.1 Are there any alternative delivery methods of this discipline? (e.g. online, flexible-scheduling, accelerated, team teaching, etc.)?	PHY courses are currently offered solely in a face-to-face format. The course management system, D2L, is leveraged for communications and content distribution for all sections of Physics. Additional access to online materials has allowed for more classroom content flexibility and peer instruction segments for our PHY instructors.
3.2 If the college delivers the course in more than one method, does the college compare success rates of each delivery method? If so, how?	N/A
3.3 What assessments does the discipline use to measure full-time and adjunct instructor performance in the classroom?	All classroom evaluation processes are guided by the college's contracts with the faculty union, ECCFA, and the Faculty Evaluation Handbook. Techniques include observation and self-assessment.
3.4 How does the discipline identify and support at-risk students?	The department receives updated information from tutoring and other college support service areas and directly communicates this information to students. Tutoring availability and scheduling is updated regularly and retention alert utilized to ensure student success.
3.5 To what extent is the discipline integrated with other instructional programs and services?	The programs of Astronomy, Engineering and Physics are considered as a subset of departments within the Health Professions, Math, Science and Engineering division, and are overseen by a singular Instructional Coordinator who is full-time faculty. Physics coursework and faculty are closely integrated with Engineering and Mathematics to ensure proper STEM curriculum scaffolding, scheduling, and efficient use of resources.

3.6 What does the discipline or department review when developing or modifying curriculum?	The dean and instructional coordinator analyze available data to determine ways to maximize retention and success including evaluating faculty performance and reassessing course outcomes. Particular attention is paid to transfer pathways and the requirements of destination programs. In this regard, faculty communicate with the Transfer Coordinator to stay current with respect to developments.
3.7 When a course has low retention and/or success rates, what is the process to address these issues?	Opportunities to maximize retention and success are continuously sought using available data to identify areas for change. Challenges in this area are principally centered on finding ways to effectively assess beginning science students and engaging them in the life-long learning process.

LIST ANY BARRIERS ENCOUNTERED WHILE IMPLEMENTING THIS DISCIPLINE.
Challenges in this area are principally centered on finding ways to effectively assess nascent science students and engaging them in the life-long learning process. In addition to knowing about students' learning related to Physics course level outcomes, the faculty would like to gain insights into student study habits and their present day preferred methods for assimilation. The newest set of advanced courses may face enrollment challenges are they appeal to a very narrow set of students. Sections ran in Summer 2019 with 4 and 5 students, respectively. Interestingly, 3 students are enrolled in both courses.

DATA ANALYSIS FOR ACADEMIC DISCIPLINES

Please complete for **each course** reviewed in the Academic Discipline. Provide the most recent 5 year longitudinal data available.

ACADEMIC DISCIPLINE AREA	Physics				
COURSE TITLE	PHY-101: General Physics				
COURSE DESCRIPTION	The first half of a one-year, algebra and trigonometry based introductory physics course taken by pre-medical, pharmacy, biology, and architectural majors and others. The study of mechanics, elasticity, fluids, heat, and thermodynamics is supplemented by laboratory experiments.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	79	88	86	79	78
CREDIT HOURS PRODUCED	395	440	430	395	390

Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	91%	90%	95%	94%	93%
IAI Status (list code)	P1 900L				
Course Title	PHY-102: General Physics				
Course Description	The second half of a one-year algebra and trigonometry based introductory physics course including lectures, demonstrations, and laboratory. Subject matter includes electricity and magnetism, circuits, light and optics, and modern physics.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	23	19	18	11	11
Credit Hours Produced	115	95	90	55	55
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	100%	94%	94%	90%	100%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	Per Transferology on 6/25/19, course articulates to schools including Eastern Illinois University, Northern Illinois University, and Roosevelt University. *Current Form 13s are not on file; Course will be sent for re-articulation.*				
Course Title	PHY-211: Engineering Physics I				
Course Description	Calculus-based study of classical linear and rotational kinematics and dynamics, including Newton's Laws, statics, work, energy, impulse, momentum, collisions, gravitation, periodic motion, fluids and wave phenomena.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	(New Course)				105
Credit Hours Produced					525
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students					88%

IAI Status (list code)	P2 900L				
Course Title	PHY-212: Engineering Physics II				
Course Description	Calculus-based study of electrostatics, Coulomb's Law, electric fields, Gauss' Law, , electric potential, capacitance, current, resistance, DC circuits, magnetic fields, electromagnetic induction, AC circuits, Maxwell's equations, electromagnetic waves, geometric optics and physical optics.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	(New Course)				63
Credit Hours Produced					315
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students					94%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	Southern Illinois University Carbondale 5/5/16, University of Illinois Chicago 5/2/16, Western Illinois University 5/12/16				
Course Title	PHY-213: Engineering Physics III				
Course Description	Calculus-based study of temperature and heat, thermal properties of matter, thermodynamics, relativity, quantum mechanics, condensed matter, nuclear physics, particle physics and cosmology.				
	Year 1 FY14	*Year 2 FY15*	*Year 3 FY16*	*Year 4 FY17*	*Year 5 FY18*
Number of Students Enrolled (Duplicated seats)	*(New course, not yet offered during review period)*				
Credit Hours Produced					
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students					
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	Illinois State University 1/14/17, Northern Illinois University 4/5/16, University of Illinois Chicago 5/2/16				
Course Title	PHY-215: Thermal Physics				
Course Description	Calculus based study of the First and second laws of thermodynamics including kinetic theory of gases, heat capacity, heat engines, introduction to entropy and				

	statistical mechanics, applications of free energy and the Boltzmann factor, sound and special relativity.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	*(New course, not yet offered during review period)*				
CREDIT HOURS PRODUCED					
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS					
IAI STATUS (LIST CODE)	PHY 913				
COURSE TITLE	PHY-216: Quantum Physics				
COURSE DESCRIPTION	Calculus-based study of atomic physics and quantum mechanics. Including waves, interference and diffraction, photons and matter waves, the Bohr atom, the uncertainty principle, and wave mechanics.				
	YEAR 1 FY14	*YEAR 2 FY15*	*YEAR 3 FY16*	*YEAR 4 FY17*	*YEAR 5 FY18*
NUMBER OF STUDENTS ENROLLED (DUPLICATED SEATS)	*(New course, not yet offered during review period)*				
CREDIT HOURS PRODUCED					
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS					
IAI STATUS (LIST CODE) OR FORM 13 STATUS (LIST SIGNATURE DATES AND INSTITUTIONS)	DePaul University 9/11/18, Northern Illinois University 6/12/18, Illinois State University 6/6/18				
HOW DOES THE DATA SUPPORT THE COURSE GOALS? ELABORATE.	<u>ENROLLMENT</u> Physics currently offers 17 sections throughout the academic year. Enrollments for the past 5 years trended slightly upward in contrast to the overall college enrollments. The first course in each course sequence (PHY-101/111/211) saw the most significant enrollment increases over the last review period. This is consistent with an increasing availability of STEM related jobs. <u>RETENTION & SUCCESS</u> Instruction is provided by high quality faculty with the majority of sections covered by adjuncts. There is one full-time faculty in this area.				

	Success and retention rates for the established PHY courses have been consistently high over the past five years. All Physics course offerings have undergone assessment over the past review cycle. Students are currently meeting or exceeding the set assessment goals within the sampling. A continuous sampling variation to disaggregate areas of concern has resulted from these findings.
WHAT DISAGGREGATED DATA WAS REVIEWED?	Institutional Research regularly provides disaggregated data for course modality and for early college credit students, such as tech prep and middle college. ECC is a Leader College within Achieving the Dream. Under this membership, the *Student Success Infrastructure* coordinates data analysis and new initiatives from an equity mindset, and disaggregates institutional-level results for various focus populations based on race/ethnicity, program or enrollment type, etc. However, in most instances, this disaggregation is not done at the program level, though it may do so in the future, provided there are sufficient n-sizes to do so reliably. Across the college, faculty are very interested in closing achievement gaps and participate in institutional efforts to raise achievement for all students.
WERE THERE IDENTIFIABLE GAPS IN THE DATA? PLEASE EXPLAIN.	Gap analysis has not been performed for students in Physics.
ACADEMIC COURSE REVIEW RESULTS	

Intended Action Steps
Please detail action steps to be completed in the future based on this review with a timeline and/or anticipated dates.
	• Seek and acquire IAI approval for:
	  o PHY-215 FA19
	  o PHY-216 SP20
	• Onboard new faculty for additional PHY-101 section SP21
	• Additional PHY-102 offering SU21

Rationale Provide a brief summary of the review findings and a rationale for any future modifications.	The working plan for the next five years will focus on expansion opportunities. Looking at the enrollment seats for the past ten years, a linear fit has enrollments up 65% over the next ten years. Within the backdrop of an Occupation Outlook forecast for all engineering fields indicating increases at 7-13% over the next 8 years, we are expecting a need for additional staff, facility space and laboratory equipment. In particular, we would like to add one additional fulltime faculty within Physics and annex M166 as a second Physics laboratory space.

Resources Needed	Continued instructional supply lines and end of year equipment allocations as available, additional full-time faculty in this area and room space.
Responsibility Who is responsible for completing or implementing the modifications?	Divisional administration, Instructional Coordinator, and related faculty when available.

Developmental English Language Arts	
College Name:	Elgin Community College
Fiscal Year in Review:	FY 19
Review Summary	
Program Objectives What are the objectives or goals of the program?	Learning outcomes for language arts are divided by program discipline. These outcomes have been created for the English Composition sequence, which begins in developmental. Separate outcomes have not been established for the below 100-level courses. Upon completion of the English Program at ECC, students will be able to produce writing that demonstrates: • A clear purpose appropriately directed to a specific audience • Appropriate development of the specific purpose for writing • Logical organization based on the specific purpose for writing • Appropriate style, mechanics, formatting, and documentation The following developmental Reading program outcomes were developed as part of the 2015-16 program review process. Reading faculty have encouraged revisiting these program-level outcomes as the second outcome does not reflect tasks typically required of students in college-level courses. A potential revision to this outcome is listed in italics. • Strengthen vocabulary skills through the use of word parts, contextual clues, phonics, and the dictionary. • Implement strategies to help students find the main idea and supporting details in texts. *Develop strategies for comprehending college-level texts or responding to and reflecting on college-level narrative and expository texts.* • Improve comprehension skills using various skills and strategies, such as annotating and note taking.

	The Literacy program consists of one course, LTC-099: College Literacy. Upon completion of LTC-099, students will be able to: • Critically analyze complex texts by: (1) Identifying major and minor points that writers are communicating to readers; (2) Examining the impact of vocabulary, word choice, and sentence patterns to communicate readers' and writers' stance; (3) Analyzing the development of ideas and events throughout a text; and (4) Comparing themes from multiple texts. • Develop and support written and oral arguments in response to complex texts by: (1) Applying understanding of structure from diverse formats and media to their own writing; (2) Using structural patterns to organize major and minor points and demonstrate coherence and unity; and (3) Editing to demonstrate appropriate tone, word choice, and mechanically correct sentences, and APA and MLA citation format. • Develop and apply metacognitive strategies to literacy tasks by: (1) Applying strategies to improve comprehension of academic texts (i.e., background knowledge, schema, etc.) and (2) reflecting on and evaluating strategies used in reading, writing thinking, speaking, and listening.
To what extent are these objectives or goals being achieved?	Developmental curriculum has been enhanced to connect learning and ensure relevancy/interest to students lives. Placement testing procedures and score cuts have been studied and calibrated to ensure maximum student opportunity and success. Innovative changes, such as the Accelerated Learning Program (ALP) in English, has sped progression into college-level work without sacrificing preparedness. Formative assessments include: ungraded drafts, journal assignments, individual conferencing between instructor and student, conferencing between student and student, annotations of texts, group discussions. Summative assessments include: essays, group presentations, or projects. Indirect assessment includes course-climb

	data and success in next sequence.
How does this program contribute to other fields and the mission of the college?	Developmental reading and writing courses provide critical access points for students who enter the college not prepared to enroll in college-level courses with minimum competency requirements. All IAI approved courses include minimum competencies for reading and writing. Many career-technical courses also include some type of minimum requirement for students to demonstrate reading and writing skills, which can vary. In additional to academic outcomes, these courses also include socio-emotional curriculum and student skill development. It ensures proper scaffolding and preparation for students to succeed in subsequent college-level work. Where appropriate, the courses also contribute to several of the college's General Education learning outcomes.
Prior Review Update Describe any quality improvements or modifications made since the last review period.	**Accelerate student completion of developmental education in 12 months (aligned with state of Illinois goal).** Progress reported: Accelerated Learning Program (ENG-098 with ENG-101 in same term) fully implemented FA2016. Integrated reading/writing class, LTC-099, piloted FA2016. RDG-085 and ENG-094 courses withdrawn summer 2016. Accelerated enrollment of RDG-091 placed students, with college-level writing, to co-enroll in ENG-101. Students who placed into ENG-097 and RDG-090 now enroll in LTC-099 as these classes are not offered. **Ensure regular assessment/evaluation of student learning, student success measures and placement policies and tools.** Progress reported: LTC-099 course assessment completed each year 2016-2018, including analyses of student success measures. RDG-090 course assessment completed spring 2017. RDG-091 course assessment completed spring 2017 and Fall 2018. Student success metrics continue to be analyzed annually to gauge impact of ALP. ENG-101 course assessment projects in 2016 and 2018 included writing artifacts from ALP students.

Map developmental education curriculum from common core state standards (CCSS).

Progress reported: Redesigned RDG-090-091 curriculum, aligned to Common Core State Standards, developed in Spring 2015 and implemented Fall 2016. ENG-101 course content and assessment standards revised 2014-2015. These revisions were aligned to CCSS as well as backwards curriculum mapping was completed to inform ENG-098 and ENG-097 curriculum.

Promote faculty dialogue to examine national best practices, regular data review, and cross-disciplinary sharing.

Progress reported: English faculty teaching ALP met regularly 2014 through 2016 to share best practices, review data, and examine the impact of this intervention. This served as a powerful catalyst for sharing what was learned about the abilities of developmentally placed students as well as the alternative approaches for strengthening students' skills (i.e., just in time instruction) which has permeated instruction in college-level courses as well as faculty expectations when reviewing student placement essays for who is college-ready.

The implementation of LTC-099 was accompanied by the development of an internally developed faculty program, grounded in current research and theory in the field, to prepare reading and writing teachers to integrate the two disciplines. Moreover, the LTC-099 faculty met regularly in 2016 and 2017 to share best practices, review data, and examine the impact of this intervention.

A number of faculty teaching developmental reading and writing courses have completed a graduate certificate through Northern Illinois University in Postsecondary Developmental Literacy and Language Instruction.

Lastly, the Reading and English faculty have also engaged in professional development to learn how to best support English Language/Multilingual Learners. Professional development workshops in 2015 and 2017 were well attended.

	Additional accomplishments since FY14 (not related to FY14 goals): • Placement testing improvements include (1) replacing Compass Reading test with McCann College Success placement exam in December 2016; (2) English placement reading process enhanced in summer 2016 to utilize online management platform which increase faculty participation as evaluators and decreased student wait time; (3) implemented Reading-Writing Placement Guide publication in 2016 to assist students in understanding placement results as well as selecting best course options; (4) enhanced web-based resources to support student preparation for placement testing in reading and writing in 2015; and (5) developed supplemental resources to aide students with lowest scores on reading and writing placement exams. In FY2018, validity studies were created by the office of Institutional Research office as an initial step to review the impact of placement results on student success every three years. In FY2019, the college will implement the ICCB Placement Framework which will reduce the number of students identified as needing developmental education starting fall 2019. • A pilot was implemented in FY2018 to pair Career-Technical Education program faculty with faculty with expertise in developmental literacy instruction. Faculty are partnering in the areas of Early Childhood Education, Heating Ventilation and Air Conditioning, and Reading. Strategies have focused on instructional practices to promote and enhance students' reading and writing skills as well as redesign and scaffolding of class assignments. The pilot is continuing in FY2019.

Review Analysis Complete the following fields and provide concise information where applicable. Please do not insert data sets but summarize the data to completely answer the questions. Review will be sent back if any of the below fields are left empty or inadequate	
Indicator 1: Need	**Response**
1.1 Detail how the offerings are sufficient and aligned to meet the needs of students	Significant curricular revisions have been made in these areas based on extensive research and lit reviews. Continual analysis of success and progression data

across all programs served and supportive academic programs (e.g. tutoring, co-requisite, summer bridge, AE-ICAPS, foundational mathematics).	informs decision making. Program faculty and administration partner with secondary schools to discuss preparation and placement of incoming students, and are in communication with testing and advising. Placement measure research is discussed with mathematics faculty, though each department will decide how to best implement their own policies. The Accelerated Learning Program has been highly successful. In fall 2018, all ENG-098 sections were scheduled with ENG-101; however, a small need was identified for students who need to satisfy ENG-098 prerequisite requirements for CTE programs without the composition course, which will be addressed. The department would also like to explore modifying ALP to consider the impact of requiring fewer credit hours in the 098 portion as well as making the supplemental support course tuition-free as many colleges provide. The department has discussed development of alternative ENG courses like Professional Writing which may best support CTE programs instead of ENG-101/102. All students enrolled in developmental coursework are introduced to college support services, such as faculty office hours, the Tutoring Center, The Write Place and the library, as well as non-curricular support such as Wellness and Spartan Food Pantry. Technology is widely used in developmental courses to provide access to resources to students.
Indicator 2: Cost	**Response**
2.1 What are the costs associated with this program?	The primary costs for these programs are faculty salaries. Developmental reading and writing courses costs are low compared to other programs at the college. Budgets for the Reading and English departments have remained fairly stable for the last five years. With enrollment declines in Reading, the faculty salaries have declined. In addition, both programs have modified developmental course fees in the last five years to reduce the burden on students. With declining developmental course enrollments, the students have less time spent in developmental courses. The college has also spent less on faculty salaries for these courses. Faculty salaries spent on developmental

	education have consistently declined in the last five years. This is reflected in the Reading budget for salaries. The English budget for salaries does not show this reduction; however, it is important to note that faculty are teaching more college-level courses in the last five years.
2.2 How is the college paying for this program and its costs (e.g. grants, etc.)?	All costs for developmental reading and writing courses are paid for by the college's Educational Fund. The developmental courses also include a course fee, which was standardized to be consistent across all developmental courses three years ago.
2.3 If most of the costs are offset by grant funding, is there a sustainability plan in place in the absence of an outside funding source? If so, please elaborate.	N/A
2.4 Based upon this review, what steps are being taken to offer curricula more cost-effectively?	• Reading and English faculty have collaborated to develop a number of accelerated options for developmental education students, which has reduced the time and money students spend taking pre-college courses. • Students enrolled in ALP ENG-098 and ENG-101 are required to pay for six credit hours. Some institutions do not charge tuition for the supplemental instruction (or co-requisite support course – i.e., ENG-098). The department has expressed interest in exploring the impact of off-setting tuition charges for students enrolled in this support course (e.g. tuition waiver, incentive X% tuition reimbursement for C or better, etc.). • The faculty make extensive use of D2L to minimize costs to students.
2.5 Are there needs for additional resources? If so, what are they?	Additional resources are needed to support continued faculty development.
Indicator 3: Quality	**Response**
3.1 How is the college working with high schools to reduce remedial needs?	Over the last five years, ECC has partnered with its four feeder districts via the Alliance for College Readiness to improve the readiness of District 509 students for college and career. Examples of this collaboration

	include: • Developing high school transitional math and communication courses; • Developing a new integrated reading and writing course – LTC-099; • Conducting placement testing at the high school sites; and • Engaging high school students in outreach and exposure activities such as First Lecture, PLANS (Plan-Learn-Navigate for Success), Middle School Fridays, and other activities. The Alliance also actively monitors developmental student needs annually sharing data with district partners regarding student readiness. Through federal TRiO grant programs like Upward Bound and Talent Search, the College serves over 600 students who are first generation and/or low income by providing resources and support to increase the likelihood of College transition. Examples of support includes transportation for after-school tutoring and College trips; Transition Academy program; meals/snacks; workshops; personal guidance and support; and summer bridge programs.
3.2 What is the college doing to develop and implement co-requisite or pathway models to ensure students placing into development education finish the sequence within one academic year?	Several initiatives, implemented in the last five years, focused on accelerating student completion of the developmental sequence. The first was the Accelerated Learning Program (ALP), initiated in fall 2013. In this model, ALP students are mainstreamed into the credit-level writing course. A total of 20 students enroll in the ENG-101 section – 10 of which have demonstrated college-level writing skills, 10 placed into ENG-098. ALP students meet together six total hours of instructional time – three hours following the ENG-101 course meeting with the same instructor. Given the success students demonstrated via the ALP model, the initiative was implemented at full scale in fall 2018 whereby all ENG-098 sections were scheduled as a co-requisite with ENG-101. Moreover, the model initially required students enrolling in ALP be College-ready in reading. Beginning fall 2016, ALP was expanded to allow students who placed into RDG-091 to enroll as another method of acceleration. Students were required to enroll in both

	ALP and RDG-091 in the same term. In addition, it should be noted that the success of the ALP model has also impacted the writing placement process. The success of ALP students has caused placement faculty evaluators' to modify their expectations for College-ready writing skills in favor of greater numbers of students placing into ENG-101. The second initiative was the development of a five-credit hour, single-level, developmental course that integrates reading and writing, LTC-099. The course was collaboratively developed by College-level English and Reading faculty along with input from high school faculty. The course launched in Summer 2016. Students who successfully complete this one developmental course satisfy their reading and writing minimum competencies and thus can enroll in College-level courses that require basic reading and writing skills. A third initiative allows students with ENG-101 placement and a developmental RDG-091 placement to co-enroll ENG-101 with RDG-091. To register, an academic advisor contacts the division's academic dean for approval. A fourth initiative was the withdrawal of the lowest developmental reading (RDG-085) and writing (ENG-094) in Summer 2016. Students placing into these courses had approximately third-grade reading and writing skills. Longitudinal student success analyses highlighted that placement three levels below College-level resulted in very few students' ever entering College-level courses. Moreover, often these students had significant learning and cognitive disabilities. Students who currently place below ENG-097 and RDG-090 are provided referral services to support with placement testing preparation for re-testing, assistance from Disability Services, and/or connections to community resources. In accordance with the Postsecondary & Workforce Readiness Act requirements, the College and its district partners are working collaboratively to create transitional high school courses. Students who successfully complete these courses in their fourth year of high school will enter college-level courses without

<table>
<tr><td></td><td>completing additional placement assessments. In 2018-19, College and high school faculty and administrators are partnering to develop three transitional math pathways. These will be available to high school students in Fall 2019. Transitional communications course curriculum is also being developed for implementation Fall 2020.

The final acceleration initiative is the regular review of student placement data to ensure students enroll in highest possible developmental course. The review was conducted by the academic dean's office throughout the registration cycle; then, students who may be misplaced were flagged for follow up by the advising office.</td></tr>
<tr><td>3.3 Provide a description of the developmental sequence. Colleges may attach a graphic representation.</td><td>The developmental course offerings at ECC have been notably revised in the last five years. Currently, both the English and Reading departments have a two-course sequence (formerly a three-course sequence): ENG-097-ENG-098 and RDG-090-RDG-091. There is also the stand-alone five-credit hour LTC-099 course. In the last few years, low student enrollment in stand-alone ENG-097 and RDG-090 has made offering these courses unfeasible. As a result, only three developmental courses are regularly offered: LTC-099, RDG-091, and ENG-098.

The following table illustrates the current developmental course options recommended for entering ECC students:
<table>
<tr><th colspan="3">If you were placed into</th><th>Recommendation</th></tr>
<tr><td rowspan="2">Reading</td><td>RDG 090</td><td></td><td>LTC 099</td></tr>
<tr><td>RDG 091</td><td></td><td>RDG 091</td></tr>
<tr><td rowspan="2">Writing</td><td></td><td>ENG 097</td><td>LTC 099</td></tr>
<tr><td></td><td>ENG 098</td><td>ENG 098 + ENG 101 (ALP)</td></tr>
<tr><td rowspan="4">Reading & Writing</td><td colspan="2">RDG 090 and ENG 097</td><td>LTC 099</td></tr>
<tr><td colspan="2">RDG 090 and ENG 098</td><td>LTC 099</td></tr>
<tr><td colspan="2">RDG 0901 and ENG 097</td><td>LTC 099</td></tr>
<tr><td colspan="2">RDG 091 and ENG 098</td><td>RDG 091+ENG 098+ENG 101 (ALP)</td></tr>
</table></td></tr>
<tr><td>3.4 Are there any alternative delivery methods of this program? (online, flexible-scheduling, team-teaching, accelerated, etc.)?</td><td>Most developmental education courses in ENG, RDG, and LTC incorporate use of the Desire2Learn (D2L) platform.

Typically developmentally placed students may lack motivation and/or self-management skills necessary to successfully learn via the current distance learning technologies. As noted above, students are engaged with these technologies but within the standard face-to-face</td></tr>
</table>

	hybrid modalities would best serve this student population. Attention is given to ensure developmental RDG and ENG courses are offered in the day and evening to best meet student needs, when possible. These courses are largely taught in a 16-week format with only a few sections offered in 12-weeks for late enrolling students. Many years ago, developmental courses were included in learning communities. This approach was discontinued after ALP was introduced as Learning Communities did not notably improve developmental student success. This has been demonstrated by the ALP intervention.
3.5 What innovation has been implemented or brought to this program?	For ECC's developmental programs, innovation has come with the recent creation of new courses to best serve students and help accelerate them through their coursework: ALP-098 and LTC-099. Innovation in faculty professional development is also seen in a number of Reading and English faculty members completing coursework in Postsecondary Literacy through Northern Illinois University. More time to collaborate with other instructors is needed to help increase innovation.
3.6 To what extent is the program integrated with other instructional programs and services?	Faculty teaching developmental language arts courses are not in a separate division or department. They are fully integrated into the whole English/Reading/Literacy programs. As well, there is regular communication and collaboration with the ESL division to ensure a smooth transition for language learners. The developmental education curriculum supports student success in college-level courses as defined by the college's Minimum Competency policy. All IAI courses include minimum reading and writing competencies and many career-technical education courses also include minimum prerequisites. Curriculum Committee now also has a designated member who represents developmental education. This participation has assisted with consideration of curriculum requests to add or change course prerequisites at the most appropriate level to support learning without hindering access. The college's placement process and Testing Services department are integrated with the developmental education curriculum. For the Reading placement exam, the Testing department coordinates implementation of

	the exam and oversees all proctoring. For the English placement exam, an English faculty member coordinates English faculty to read and score submitted placement essays. This coordinator works closely with the Testing Services staff who upload placement scores into Colleague and proctor student completion of the exam. Both departments, through the CABS Associate Dean, collaborate with the Testing Services staff to ensure the website includes updated information regarding the exams. There is also close coordination with Academic Advising to create printed publications that assist students in selecting the best developmental course options.
3.7 Have partnerships been formed since the last review that may increase the quality of the program and its courses? If so, with whom?	High school partnerships through the Alliance for College Readiness have continued to be strong. In the coming year, the English and Reading faculty will partner further to develop Transitional Communications courses to be offered at the high school in accordance with the Postsecondary and Workforce Readiness legislation. Students who successfully complete these courses with a grade of C or better will enter directly into college-level courses that require reading and writing minimum competencies – students will not have to complete placement testing. ECC Literacy faculty have also partnered with ECC career-technical education faculty to strengthen student skills in courses which often do not have minimum competencies. English and Reading faculty host monthly department meetings. In FY2019, the two departments are now supported by the same instructional coordinator, which has enhanced collaboration between the areas. Emerging trends and research are discussed in department meetings. Faculty also maintain strong ties professionally to promote their own lifelong learning and networking. Memberships include: • College Reading and Learning Association (CRLA) • National Council of Teachers of English (NCTE) • Literacy Research Association (LRA) • Association of Writers and Writing Programs (AWP) • National Association of Developmental Education (NADE)

<table>
<tr><td></td><td>

- ILSADE (Illinois Learning Specialist and Developmental Educators)

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<tr><td>3.8 How well are completers of remedial/developmental courses doing in related college-level courses?</td><td>

The purpose of developmental education is to strengthen student skills for success in college-level courses. The following table outlines 5-year average success rates (grades A – C) in selected common high enrollment college-level courses for students who complete various developmental education pathway options. The college-level (CL) courses included were BIO-110, PSY-100, ENG-101, HUM-216 and HIS-151.

The developmental pathway options analyzed were: (a) ALP [ENG-098+ENG-101 and/or RDG-091 in same term]; (b) stand-alone ENG-098; (c) LTC-099; and (d) stand-alone RDG-091. Using 70% as a benchmark, students who successfully exit each of these developmental pathway options seem to be well prepared for success in college level courses.

Pathway	Students	Success Rate in CL	Withdrawal Rate
ALP	629	87%	4%
ENG-098	1,205	81%	9%
LTC-099	146	72%	12%
RDG-091	397	77%	10%

Source: Supplemental Dev Ed Intervention Analysis prepared by Institutional Research office, Feb 2019

</td></tr>
<tr><td>3.9 What professional development or training is offered to instructors and/or staff to ensure quality programming?</td><td>

There are plentiful and various professional development opportunities for faculty at the college. The faculty contract allows for professional development funds, and includes part-time faculty. The college offers in-house training on various subjects. Even in light of recent travel restrictions and other financial constraints, many faculty continued to utilize professional development funds to attend conferences in their discipline.

ECC literacy faculty have spent considerable time researching best practices and expanding their knowledge/skills to best meet developmental student needs. A training program for integrated reading and writing has been developed. Faculty are encouraged to participate as well as required to complete this training in order to teach LTC-099. Faculty organize and participate in norming sessions for placement and classroom assessment, which may be expanded to

</td></tr>
</table>

	include all levels of the writing sequence. Faculty from these areas see a need to increase understanding and awareness of developmental course curriculum and instructional practices for faculty who do not teach developmental courses. This will aide these faculty in supporting students who later enroll in college courses via the development pathway. The CABS division's faculty exchange program may also be leveraged to support faculty awareness of developmental courses. Across more general topics, faculty have expressed the desire for continued development on active learning techniques, and need training in best practices to support students with mental health, trauma-related challenges, and disabilities.

List any barriers encountered while implementing the program.

Creating collaborative interventions can be difficult as developmental faculty do not always share the same educational philosophy and/or pedagogical practices. Moreover, the burgeoning educational research in the field of developmental education has provided much insight into effective interventions; however, not all faculty remain current with such research advances.

Enrollment in developmental reading and writing courses may continue to decline as initiatives implemented with the college's secondary partners to improve student readiness are implemented. In FY2021, the first transitional communications courses will be implemented at district high schools, which may also decrease enrollment in ECC developmental courses. Additionally, faculty may consider renaming developmental reading courses to encourage student enrollment.

Maintaining multiple datasets/analyses to measure various developmental education initiatives can be difficult to maintain as well as time consuming to update. Ensuring close coordination with academic advising also is time consuming, yet vital to ensuring student enrollment in the best course options.

Faculty are challenged to effectively assess the components of ENG-098 as they are all ALP sections tied to ENG-101. There are few (if any) separate assessment documents unique to the 098 class and clarification is needed regarding clarify how to assess student learning.

Within LTC-099, faculty are challenged by how to accurately assess the reading component of the course, that is, how to tell if the students understand the content of what they have read. The program has tried to implement a common set of readings and a writing assignment for the LTC assessment, but not all faculty teaching the course have participated in this common assessment making course-wide assessment difficult.

Data Analysis for English Language Arts Please complete for each course reviewed as part of the Remedial English Language Arts, Cross-Disciplinary Review. Provide the most recent 5 year longitudinal data available					
Course Title	**ENG-097 Communication Skills**				
Course Description	English-097 is a first semester course that reviews the fundamentals of college writing. With acquirement of new strategies, students will do assignments to improve their literacy skills by learning how to write clearly and read closely. In addition, rather than reviewing grammar skills in isolation, students will focus on learning and using key grammar concepts in the larger context of paragraph and essay writing.				
	FY14	FY15	FY16	FY17	FY18
Number of Students Enrolled	306	278	144	32	16
Credit Hours Produced	918	834	432	96	48
Success Rate (% C or better at the end of the course, Excluding Withdrawals and Audit students)	61%	65%	77%	72%	67%
Course Title	**ENG-098 Developmental Composition**				
Course Description	English-098 continues the development of college level writing skills. By engaging in all stages of the writing process, students will learn strategies to complete future college writing assignments. Students will not only improve their grammar, punctuation, and usage skills, but will also learn how to read closely, write clearly, and think critically. A grade of C or better in ENG 098 is a prerequisite for many college-level courses.				
	FY14	FY15	FY16	FY17	FY18
Number of Students Enrolled	972	882	729	483	323
Credit Hours Produced	2,916	2,646	2,187	1,449	969
Success Rate (% C or better at the end of the course, Excluding Withdrawals and Audit students)	76%	76%	73%	76%	83%
Course Title	**RDG-090 Fundamentals of College Reading Literacy**				

Course Description	In this course, students will begin to develop strategies to strengthen comprehension, vocabulary, and strategic thinking. This is the first semester of a two-course sequence to prepare students to use college-level literacy approaches to meet demands of increasingly complex texts.				
	FY14	FY15	FY16	FY17	FY18
Number of Students Enrolled	146	161	130	24	8
Credit Hours Produced	438	483	390	72	24
Success Rate (% C or better at the end of the course, Excluding Withdrawals and Audit students)	72%	52%	67%	67%	63%
Course Title	**RDG-091 Advanced Academic Reading & Inquiry**				
Course Description	In this course, students will use college-level reading literacy approaches to meet the demands of increasingly complex college texts. This is the second semester of a two-course sequence to develop students to successfully read complex disciplinary texts.				
	FY14	FY15	FY16	FY17	FY18
Number of Students Enrolled	604	522	484	279	239
Credit Hours Produced	1,812	1,566	1,452	837	717
Success Rate (% C or better at the end of the course, Excluding Withdrawals and Audit students)	68%	75%	73%	71%	68%
Course Title	**LTC-099 College Literacy**				
Course Description	In this pre-college level course, students will develop their literacy skills using literacy tasks (reading, writing, thinking, speaking, and listening) to make meaning from college level texts. Integration of reading and writing strategies will help students develop academic approaches needed for success in college level courses. A grade of C or better in this course allows the student to enroll in college-level courses with a minimum reading.				
	FY14	FY15	FY16	FY17	FY18
Number of Students Enrolled	(New Course)			226	244
Credit Hours Produced				1,130	1,220

Success Rate (% C or better at the end of the course, Excluding Withdrawals and Audit students)		63%	61%
HOW DOES THE DATA SUPPORT THE COURSE GOALS? ELABORATE.	ENROLLMENT: Enrollments in developmental reading and writing courses have declined notably in the last five years. This decline has been more significant than the overall enrollment declines for the college – down 17% in seats and down 11% in credit hours over the last five years. Over the last five years, the percentage of entering students who place into developmental courses has been declining in both subjects. This means incoming student cohorts are entering more prepared for college-level work. Given curricular changes and enrollment figures, the department intends to withdraw ENG-097 and RDG-090 as students will instead enroll in LTC-099. SUCCESS: The program has clear data that show the success of students in the ALP ENG-098, which have increased over the review period. However, the faculty would like to look more closely at the declining success rates of ALP students in ENG-102. This will be included in the next ENG-102 assessment project. The LTC course is still new and successful completion rates are lower than faculty would like. However, considering many of the students were placed in RDG-090 and/or ENG-097, the goal of students making the progress needed to be successful in college level courses in one semester may not be attainable for all students. Some may need more than one semester to strengthen their skills. More data is needed to determine what the best route is for these students. The department will continue to explore further assessment methods to examine the success of LTC-099. One challenge in looking at the LTC-099 data is separating the repeating students from the first-time students. Some questions faculty are still faced with include: how are the success rates of first-time LTC students different from repeating LTC students? Is there a way to identify what challenges unsuccessful LTC students face (financial, academic, personal, etc.) and find		

	ways to better serve those needs that may fall outside of our classroom? Further analysis of revised Reading curriculum needed. Refer to Appendix A following this chapter for additional data analysis conducted by the program.
Review Results	
Rationale Provide a brief summary of the review findings and a rationale for any future modifications.	As of February 2019, the ECC Board of Trustees has taken action to discontinue the Reading program as a stand-alone program. This provides formal direction for more purposeful integration of the reading and writing curriculum to strengthen student development. ECC has made great strides in implementing targeted courses designed to accelerate students' progression through developmental sequences. There has been a noticeable impact in preparing students to be college-ready through new LTC and ALP courses. Success rates for ALP continue to be strong; thus the program was expanded as the model for supporting students at the highest level of developmental writing. The success rates for LTC continue to be about 50%, and the faculty are committed to continuing to identify the success barriers for this specific group of students. Analysis will continue into the characteristics of students the acceleration efforts did not benefit. The program's focus over the next five years will be on strategies to increase the number of students successfully completing their developmental courses and finding further success in subsequent college-level coursework. Strengths of the programs are many. English faculty are fully engaged with and have taken ownership of the writing placement scoring process. In the last five years, the faculty have been very open to trying alternative methods that allow appropriate student acceleration. The internal expertise of two full-time Reading faculty and a number of English faculty who have obtained a postsecondary literacy graduate certificate can serve as a resource to content faculty. Developmental faculty have continued to expand their understanding of best practices in the field through graduate courses, conferences, etc.

	In the last five years, the faculty have demonstrated willingness to continuously examine their practice and curriculum along with student needs and are very attuned to supporting the whole student. As a result, the department has adopted innovative practices more openly than in the past. The faculty regularly connect with student services staff in support of developmental students. Of course, there still are opportunities. Students are able to enroll themselves in developmental courses that are lower than their placement. Faculty recommend the registration system prevent students from lower course enrollment without prior advisor consent. System capabilities will be explored in the coming year. Many layers of data (placement, enrollment, success, including progress into college-level courses) that need review and synthesis; typically faculty do not have the time, access to all the data elements, nor expertise with data analysis to conduct necessary analyses. Faculty need additional dedicated support to ensure regular analyses conducted and faculty convened to examine and engage in important discussions about student success. The program will consider assembling a standing committee to review the data. The division/College needs to create a regular method for determining if the placement exams are effectively positioning students for success. There was an initial validity study completed by the Institutional Research office in spring 2018 via an outside consultant; however, results were very dense and difficult to understand as well as not widely shared with faculty. This topic could be explored further by the committee referenced above. There is institutional opportunity to increase understanding and awareness of developmental course curriculum and instructional practices for faculty who do not teach developmental courses. This will aide these faculty in supporting students who later enroll in college courses via the developmental pathway. Though they have successfully completed the developmental coursework, students may still have challenges as they progress from developmental reading, writing, and LTC courses into college-level English courses. Faculty who primarily teach the college-level English courses need

	to be more aware of the skills students are bringing from LTC courses. In the last five years, the faculty have been very open to trying alternative methods that allow appropriate student acceleration. As such, a number of pilots and course option pathways exist; however, the number of them may be overwhelming to students and/or advising staff. Simplifying the options may be needed to more clearly identify the best program/pathway options for students. For example, if RDG-090 and ENG-097 will no longer be offered then these courses should be withdrawn. Rationale and data will be brought to Curriculum Committee in Fall 2019. Diminishment of RDG course enrollments has impacted the two full-time Reading faculty in that both can no longer obtain load via RDG and LTC course sections alone. Developmental reading and writing courses, including LTC-099, were designed to prepare students for general education courses. Students who enroll in career-technical education program courses may have to complete these courses as prerequisites; however, the courses do not align to the types of texts and tasks they must complete in those courses. Such contextualization will be revisited from prior work and a study with NIU.
Intended Action Steps Please detail action steps to be completed in the future based on this review with a timeline and/or anticipated dates.	Within the next academic year: (1) Implement regular course assessment (2) Revise ENG-098 to reflect ALP (methods, content, etc.) – begin discussions Fall 2019; propose to Curriculum Committee in Fall 2020 (3) Review ENG-101 course prerequisite to include co-enrollment in ENG-098 – propose to Curriculum Committee in Fall 2019 (4) Withdraw RDG-090 and ENG-097 – propose to Curriculum Committee in Fall 2019 (5) Establish faculty Placement Committee comprised of Reading and English faculty to review student success data, collecting feedback from faculty, improving procedures/policies, etc. (6) Exploring registration restrictions to prevent students from enrolling lower than placement without advisor approval

	(7) Change the "ENG-097" placement option on SmarterSelect to "LTC-099" – clarify criteria with readers for placing students into this option (8) Add placement option on SmarterSelect for "Below LTC-099" – clarify criteria with readers for placing students into this option (9) Faculty plan to implement regular grade norming and pedagogy – begin Fall 2019 with ENG-102 Remaining Review period: (1) Implement integrated reading and writing placement test (develop plan FY2020; target implementation 2022SP; Baker & Noel lead) (2) Explore contextualization methods to integrate basic reading and writing skills into CTE courses - NEEDS FURTHER DEPARTMENTAL DISCUSSION TO SET TIMELINE; *REVISIT CONTEXTUALIZATION PROJECT FROM FY2018-2019 & NIU STUDY* The developmental reading and writing programs have sufficient resources at this time to meet their program needs. It was also noted that administrative support for monitoring and coordinating the completion of course assessment projects as well as ensuring broad faculty engagement continues to be needed. Faculty Michele Noel, Tina Ballard, Ruby Sanny, Christina Marrocco, Sarah Baker, and Ryan Kerr contributed to this report, as did Administrators Rick Mao, Mia Hardy and Mary Perkins.

ALLIANCE FOR COLLEGE READINESS – COLLEGE READINESS METRIC: The following table outlines the percentage of new students enrolling directly from high school who placed college-ready in both English/writing and Reading. Over the last five years, the percentage of entering students who place into developmental courses has been declining in both subjects. This means incoming student cohorts are entering more prepared for college-level work – ENG increased by 10% since fall 2014 while RDG increased by 1%.

Faculty highlighted one potential reason for this improvement in English is due to changes in recent years of faculty perspectives of which students are prepared to enter into a college-level writing course. Based on faculty experiences teaching in ALP, they report that they are more inclined to place students into ENG101 than in years prior. The faculty also noted that the implementation of the online system for reading writing placement essays in 2016 also resulted in only English faculty conducting the evaluations and evaluators were not influenced by others, as they were when scoring was done in small groups.

It should also be noted that when taking a longer view of the trend data with the implementation of the Alliance in 2006, the RDG rates have improved dramatically. The faculty indicated the need to monitor college readiness rates as the revised placement standards are implemented with the fall 2019 cohort – changes include allowing students to enter based on GPA alone and changing SAT Evidence-Based Reading/Writing cut score from 530 to 480.

Table 1: College Readiness Rates

		Total HS Grads	English		Reading	
			College Ready (%)	Develop-mental (%)	College Ready (%)	Develop-mental (%)
	2014FA	**1,111**	66.6%	33.4%	79.1%	20.9%
	2015FA	**1,154**	75.0%	25.0%	81.9%	18.1%
	2016FA	**1,124**	72.6%	27.4%	81.4%	18.6%
	2017FA	**1,037**	77.1%	22.9%	81.7%	18.3%
	2018FA	**983**	77.0%	23.0%	80.8%	19.2%

Source: Alliance for College Readiness college-readiness metric analysis, Sept 2018

ENG COURSE SUCCESS RATES: The following tables outline course success rates (A-C) and enrollments for the last five years in developmental and college-level Composition courses. A few notable trends were identified:

a. Enrollment in ENG097 has diminished significantly (-95% - see Table 3). This change has resulted not only from fewer students placing into ENG097 during this period (see Table 2), but also due to intentional reduction of scheduling ENG097 sections in FY2017-2018 with the implementation of LTC099 in fall 2016.
b. Enrollment in ENG098 has also notably diminished (-66% - see Table 3). This change has resulted not only from fewer students placing into ENG098 during this period (see Table 2), but also due to the transition from a paper-based, group scored writing placement essay to an online, independently scored essay. [*See the faculty explanation in the section above*.] In addition, success rates in ENG098 have increased from 68% in FY2014 to 75% in FY2018 (see Table 4). It should be noted that these increases occurred not only while the demographic of students eligible for ALP was expanded (see ALP section

below), but also while the predominance of students enrolled were served by ALP ENG098 sections starting fall 2017 with ALP-only options scheduled starting fall 2018.

c. Enrollment in traditional ENG101 classes, as well as the percentage of students successfully completing ENG101, has remained consistent between FY2014 and FY2018. During this time, several acceleration initiatives were in place. One was the expansion of ALP so that more students were allowed to enroll. The second was a pilot allowing students who met the 3.0 HS GPA and college-ready in ENG or RDG to enroll in ENG101. Analysis of this pilot by the Institutional Research office showed ENG-GPA-bumped and RDG-GPA-bumped students have similar success rates to other students.

d. Enrollment in traditional ENG102 classes has increased 11% between FY2014 and FY2018. This is largely attributable to the Accelerated Learning Program where students co-enroll in ENG098 with ENG101. Course success rates for ENG102 have declined from 78% in FY2014 to 76% in FY2018. In fall 2014, the English faculty clarified the required writing assignment expectations via the department course syllabus as previous submissions to the Illinois Articulation Initiative identified gaps in the amount of writing and rigor students were completing.

Table 2: English/Writing Placement Tallies

Jan-Dec	CY2014	CY2015	CY2016	CY2017	CY2018
ESL	39	41	23	34	20
Below ENG097	14	12	4	--	--
ENG097	374	184	171	71	60
ENG098	986	787	879	693	779
ENG101	876	942	935	1277	1323

Source: Testing Center report, Jan 2019; CY = Calendar Year (Jan-Dec)

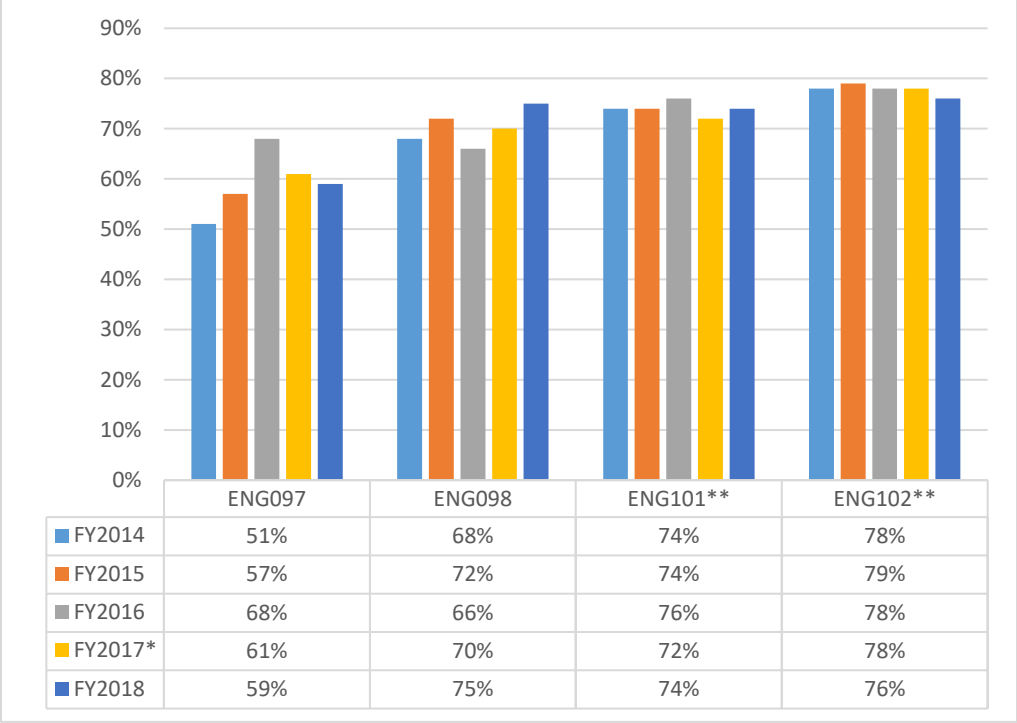
Table 3: ENG Course Enrollment Trends

	FY14	FY15	FY16	FY17	FY18
ENG097	353	323	166	44	19
ENG098	1067	962	808	539	360
ENG101**	2256	2270	2313	2441	2278
ENG102**	1668	1892	1777	1861	1861

Source: Program review Pivot Tables prepared by Institutional Research office

**ENG101 and ENG102 traditional (classroom-based) success rates only, excludes online

Table 4: ENG Course Success Rate Trends



	ENG097	ENG098	ENG101**	ENG102**
FY2014	51%	68%	74%	78%
FY2015	57%	72%	74%	79%
FY2016	68%	66%	76%	78%
FY2017*	61%	70%	72%	78%
FY2018	59%	75%	74%	76%

Source: Program review Pivot Tables prepared by Institutional Research office

ALP COURSE SUCCESS RATES: The Accelerated Learning Program was implemented in fall 2013. In the initial years, students who enrolled were placed into ENG098 and demonstrated college-readiness in reading. Due to the success of the program, it was determined that RDG091 placed students were allowed to enroll in ALP as long as they co-enrolled in RDG091 starting fall 2016. This program modification expanded the number of eligible students. In fall 2018, an additional programmatic change was made to ENG098 course scheduling. Given the high success rates of ALP students, the faculty recommended students were better served in ALP rather than stand-alone sections. Starting fall 2018, no stand-alone ENG098 sections were scheduled so that all students enrolled in ALP.

Success rates for ALP students in ENG101 has remained fairly consistent over time; however, success rates in ENG102 for ALP students have declined. The faculty expressed concern with this trend. The faculty also indicated that the ALP faculty met regularly during the initial years of ALP implementation, which served as a useful touchpoint to ensure consistency across sections and/or share best practices. Perhaps it is necessary to reconvene those instructors to revisit how ALP098 is taught, clarify what should be taught, and clarify what reading support is needed in 098.

To further explore these issues and identify improvements, the English faculty are encouraged to focus on ALP for their next ENG098 course assessment project. The faculty developing this program review report also indicated it will be important to include the Reading faculty in this assessment project as English faculty may need further support/development regarding strategies to help students strengthen their reading skills.

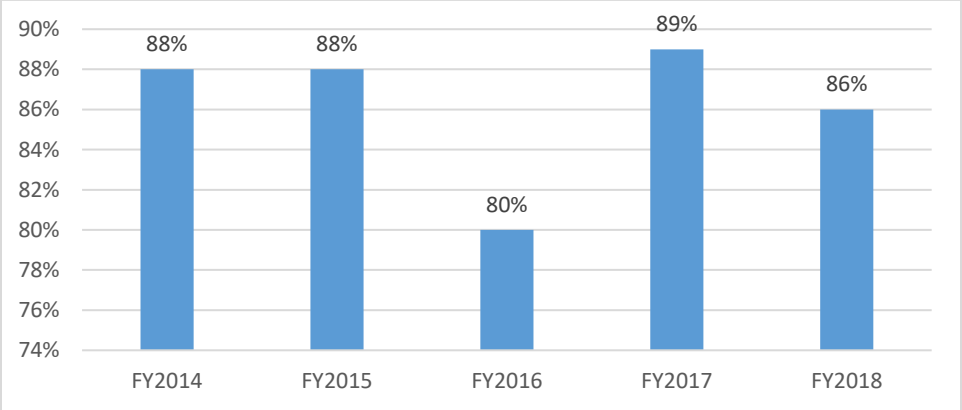
Table 5: Accelerated Learning Program Student Course Success Rates

	ENG101 Success		ENG102 Success	
Cohort	**ALP**	**Reg 098**	**ALP**	**Reg 098**
2013FA	86%	71%	97%	86%
2014FA	83%	73%	93%	88%
2015FA	91%	76%	82%	79%
2016FA	89%	56%	70%	67%
2017FA	89%	53%	68%	0%
2014SP	82%	73%	83%	86%
2015SP	81%	71%	82%	83%
2016SP	90%	48%	69%	67%
2017SP	84%	88%	75%	0%

Source: Accelerated Learning Program analysis prepared by Institutional Research office, Dec 2018

Success in 1st-year college-level coursework: The goal of developmental coursework is to prepare students for successful completion of college-level courses. To that end, another analysis explored how well ALP students do in college-level courses after they successfully complete ALP. For this analysis, the following typical college-level courses were included as most students need to complete these courses for program requirements: BIO-110, ENG-101, HIS-151, HUM-216 and PSY-100. The five-year combined average success rate for ALP in these common college-level courses is 87%.

Table 6: First-Year College-Level Coursework Success by Developmental Initiative*



Source: Supplemental Dev Ed Intervention Analysis prepared by Institutional Research office, Feb 2019

(** "Success Rate" indicates that student earned an A, B or C grade out of all students completing the college-level courses: BIO-110, ENG-101, HIS-151, HUM-216 and PSY-100.)

RDG COURSE SUCCESS RATES: The following tables outline course success rates (A-C) and enrollments for the last five years in developmental Reading courses. A few notable trends were identified:

a. Enrollment in RDG090 has diminished significantly (-95% - see Table 7). This change has resulted not only from fewer students placing into RDG090 during this period (see Table 6), but also due to intentional reduction of scheduling RDG090 sections in FY2017-2018 with the implementation of LTC099 in fall 2016. The RDG090 course success rates have been volatile over the last five years (see Table 8). In fall 2016, a significantly revised RDG090 curriculum was implemented. It was created using backward design from college-level reading standards. In addition, a new placement exam (McCann College Success) was implemented in December 2016 as the company eliminated the former exam (ACT Compass).

b. Enrollment in RDG091 has also notably diminished (-60% - see Table 7). This change has resulted not only from fewer students placing into RDG091 during this period (see Table 6), but may also be due to the implementation of a new reading placement test in December 2016. The McCann College Success exam replaced the ACT Compass placement testing product which was retired by the company. The RDG091 course success rates have also been volatile over the last five years showing notable improvement in FY2015 but declines each year since (see Table 8). In fall 2016, a significantly revised RDG091 curriculum was also implemented. It was created using backward design from college-level reading standards. In addition, a new placement exam (McCann College Success) was implemented in December 2016. The faculty expressed concern that even with the curriculum revisions, student motivation continues to be an area of challenge in that students are not engaged in college-level reading tasks.

To further explore these issues and identify improvements, the Reading faculty are encouraged to use their upcoming RDG091 course assessment project. The faculty developing this program review report also indicated it will be important to include the English faculty in this assessment project as the two departments continue to closely collaborate to address developmental student issues.

Table 7: Reading Placement Tallies

Jan-Dec	2014	2015	2016	2017*	2018
Below RDG090	18	17	18	20	26
RDG090	333	292	307	244	241
RDG091	891	833	848	797	950

Source: Testing Center report, Jan 2019; CY = Calendar Year (Jan-Dec)

*McCann College Success reading placement exam started Dec 2016

In 2017-18 the CABS division had established a division goal to implement a regular placement validity study that would be conducted every three year in order to assess the accuracy/effectiveness of the reading and writing placement exams. In spring 2018, the first study was completed. Through this study, we were also

interested in examining the following: (1) the accuracy of the new SAT integrated reading and writing cut score of 530; (2) the accuracy of the new College Success reading placement exam; and (3) the accuracy of the 3.0 high school grade point average that was being used in combination with a student's placement into RDG091 or ENG098 which bumped students into college-level courses. The Reading faculty had also expressed concern for many years that the ACT cut score for Reading, at 18, was far below the college readiness benchmark.

The study yielded the following findings:

a. The ACT English cut score of 20 appears to sufficiently ensure student success. In fact, the analysis indicated an English sub-score of 18 may also be adequate.
b. Establishing an ACT Reading cut score of 20 may increase student success.
c. The high school grade point average of 3.0 seems to be working well.
d. The integrated reading and writing SAT cut score of 530 may be too high. Moreover, College Board recommends the college readiness benchmark score is 480.
e. At the time of the study there was limited McCann College Success placement data as the cohort used was new to ECC in fall 2016 (test implemented in Dec 2016); therefore, an analysis of the effectiveness of this new exam was not completed.

Anecdotal feedback from the Reading faculty highlight concerns that the McCann College Success exam may not be placing students accurately. In addition, for a number of years the English and Reading faculty have discussed implementing an integrated reading and writing exam – similar to the current integrated reading and writing SAT exam. Such an exam would require adding multiple college-level texts then requiring students to use the synthesized information to write their essay. Such an integrated approach would more accurately model college-level course tasks. In previous discussions, the faculty hesitated to combine these due to placement into stand-alone RDG and ENG coursework and concerns with preparedness of placement readers to assess student readiness for reading and writing.

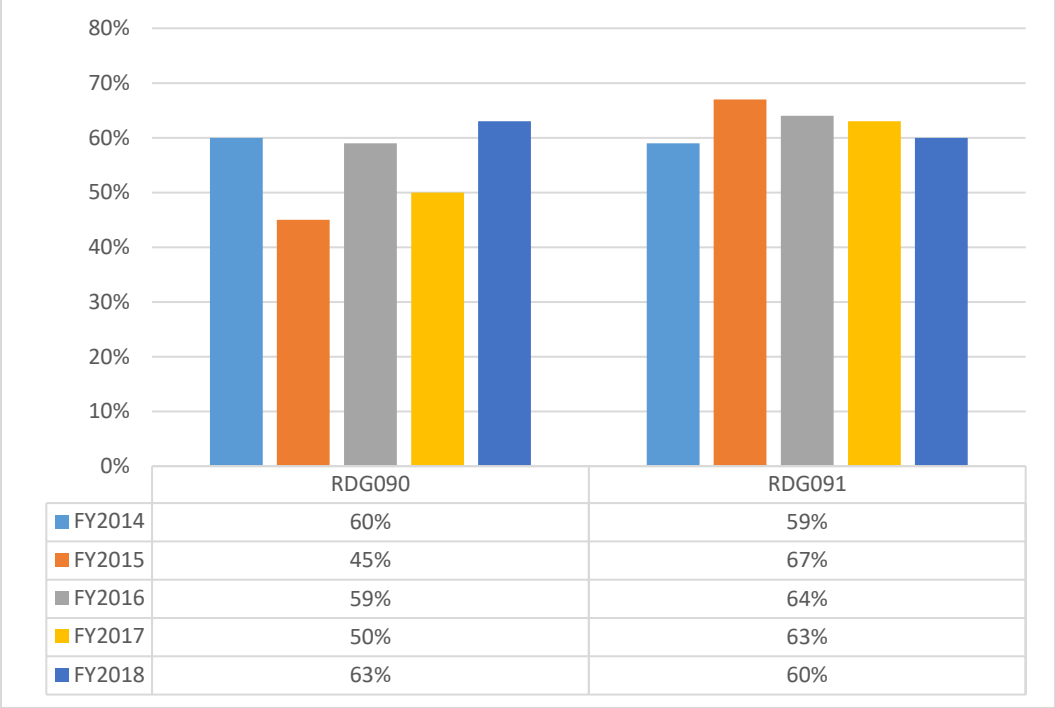
In addition, the college's adoption of the state recommendations for multiple measures for student placement will go into effect with fall 2019 new students. The significant changes to the placement process will be students with a 3.0 high school GPA will place directly into college-level reading and writing courses without having to complete the placement exam. In addition, the SAT college readiness benchmark/cut-score will be revised from 530 to 480. Lastly, the ACT Reading sub-score required will now be the same as English, which will be revised to 19.

Table 8: RDG Course Enrollment Trends

	FY2014	**FY2015**	**FY2016**	**FY2017**	**FY2018**
RDG090	172	192	148	29	9
RDG091	666	585	549	315	269

Source: Program review Pivot Tables prepared by Institutional Research office

Table 9: RDG Course Success Rate Trends



	RDG090	RDG091
FY2014	60%	59%
FY2015	45%	67%
FY2016	59%	64%
FY2017	50%	63%
FY2018	63%	60%

Source: Program review Pivot Tables prepared by Institutional Research office

LTC COURSE SUCCESS RATES: LTC099 is a single-level developmental course. This five-credit hour course was developed using a backward design framework from college-level reading and writing expectations. In this course, students regardless of placement level work on college-level reading and writing strategies and practices. Instruction fully integrates reading and writing (unlike the stand-alone ENG and RDG developmental education courses). Successful completion of this course fulfills the minimum competency requirements for both reading and writing. The course was first offered in fall 2016.

The course success rates (A-C) and enrollments for the LTC099 course are listed below:

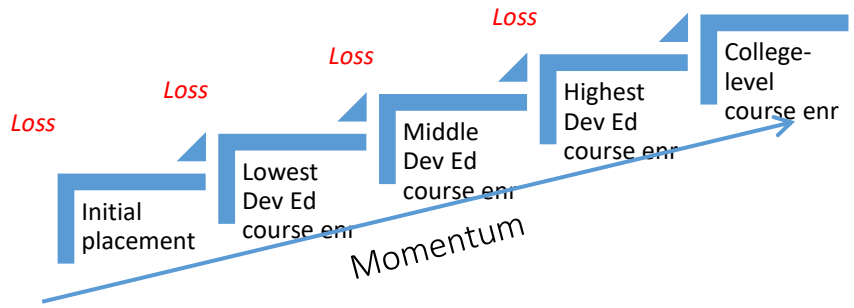
a. Enrollment for the last two years has been relatively consistent at just under 150 students.
b. Typically students enrolling in LTC099 have developmental needs in both reading and writing.
c. The faculty report that students who enroll in LTC099 represent a wide diversity of learners with varied learning and support needs.
d. When presenting LTC099 to Curriculum Committee for approval in December 2015, the faculty reported only 19% of RDG090 and 33% of ENG097 students enroll in ENG101 within three years. Based on research from the postsecondary literacy field, including integrated developmental reading and writing courses implemented at other colleges, the faculty anticipated approximately 57% of LTC099 students would advance to college-level courses. The current course success rate of 55% is in line with this expectation.

Table 10: LTC Course Enrollment & Success Trends

	FY2014	FY2015	FY2016	FY2017*	FY2018
LTC099	N/A	N/A	N/A	55%	55%
	N/A	N/A	N/A	140	147

Source: Program review Pivot Tables prepared by Institutional Research office

Developmental Climb: In addition to course enrollment, the college regularly monitors the achievement of specific developmental education milestones. The following image illustrates the different milestones studied. Research has demonstrated students who have the most milestones to complete are the least likely to be successful. The following image highlights that with each milestone there is also a "loss" of students in the cohort who did not progress.



This developmental climb analysis highlights the following opportunities for improvement:

- Enrollment in **ENG097** has declined from 125 students in 2013 to only 25 students in 2017. Only about one-third of ENG097 students enroll in ENG101 – 2013FA cohort 42%; 2014FA cohort 48%; 2015FA cohort 39%; 2016FA cohort 41%; 2017FA cohort 32%
- Enrollment in **RDG090** has declined from 84 students in 2013 to 51 in 2017. One fourth of RDG090 students enrolled in ENG101 – 2013FA cohort 37%; 2014FA cohort 30%; 2015FA cohort 32%; 2016FA cohort 44%; 2017FA cohort 41%
- Enrollment in **RDG091** has declined from 260 in 2013 to 170 students in 2017. The percentage of students enrolling in ENG101 after RDG091 has been declining – 2013FA cohort 61%; 2014FA cohort 61%; 2015FA cohort 54; 2016FA cohort 60%; 2017FA cohort 51%

Success in 1st-year college-level coursework: The goal of developmental coursework is to prepare students for college-level coursework. An analysis was also completed to explore how well LTC099 students do in college-level courses after they successfully complete LTC099. For this analysis, the following typical college-level courses were included as most students need to complete these courses for program requirements: BIO-110, ENG-101, HIS-151, HUM-216 and PSY-100. The following table illustrates that once LTC099 students successfully complete the course, then over 70% of students are successful in these common college-level courses.

Table 11: First-Year College-Level Coursework Success by Developmental Initiative

	FY2017			FY2018			Combined Avg.		
Intervention	# of Students	Success Rate**	Withdrawal Rate***	# of Students	Success Rate**	Withdrawal Rate***	# of Students	Success Rate**	Withdrawal Rate***
ALP 098+101	186	89%	3%	134	86%	3%	629	87%	4%
LTC-099	91	71%	12%	55	73%	13%	146	72%	12%

Source: Supplemental Dev Ed Intervention Analysis prepared by Institutional Research office, Feb 2019

(** "Success Rate" indicates that student earned an A, B or C grade out of all students completing college-level courses: BIO-110, ENG-101, HIS-151, HUM-216 and PSY-100. Only includes courses that student had completed in same term as most recent developmental pathway course (as indicated by "Fiscal Year" column heading) or after)

(*** "Withdrawal Rate" indicates that student earned an AW or W grade out of all students enrolling in the college-level courses: BIO-110, ENG-101, HIS-151, HUM-216 and PSY-100. Only includes courses that student had enrolled in same term as most recent developmental pathway course (as indicated by "Fiscal Year" column heading) or after)

STUDENT AND ACADEMIC SUPPORT SERVICES

The ICCB Program Review requires each college to submit a statement of the review of student and academic support services that the college completed during the year. A completed and comprehensive review will likely be between **4 – 8 pages in length**.

College Name:	Elgin Community College
Fiscal Year in Review:	FY2019
Review Area:	**Financial Aid**
Program Summary Please provide a brief summary of the function of the program.	The purpose of the Financial Aid and Scholarships office is to provide a comprehensive range of services that help bridge the gap between financial resources of students and their families and the cost of education at Elgin Community College (ECC). The Financial Aid office's primary goal **is** to deliver superior assistance to all students and families. In addition to assisting students and families with their financial aid questions, the office oversees the college's financial literacy program. **Program Learning Outcomes:** After participating in Financial Aid Services, students will be able to: • Be familiar with the free application for federal student aid (FAFSA) and able to independently complete the application in future years. • Be an educated borrower by borrowing only the necessary funds versus the federal limit, if applicable**.** • Utilize the variety of financial resources available to pay for college such as the ECC Foundation scholarships, private scholarships, and on-campus employment.
Prior Review Update Describe any quality improvements or modifications made since the last review period.	**Provide education to faculty on financial aid policies and procedures that impact student's ability to pursue their education.** <u>Progress reported:</u> On Thursday, January 14, 2016, Kim Wagner, Amy Perrin, and Joyce Proctor presented at the TLSD Division meeting highlighting the importance (and regulatory requirement) for accurate rosters. If a student is "not actively pursuing" a course as stated in the course syllabus, the student needs to be withdrawn from the course. A last date of attendance needs to be populated within the grade sheet. An electronic handout was made available to those that were not in attendance at the division

meeting. The financial services area collaborated with the Registrar's office to reinforce to faculty the importance of 10th day, mid-term, and towards the end of the term reporting.

The Financial Aid Office as well as the Student Accounts office will partner in FY2016 to offer a Massive Open Online Course for parents and students in District 509 highlighting general how to pay for college knowledge.

Progress reported: From November 16, 2015 to December 11, 2015, ECC delivered a Massive Open Online Course entitled, "How to Navigate Paying for College". The Financial Aid and the Student Accounts offices worked collaboratively with the Distance Learning team to develop and produce this free, four-week module, online course to anyone interested in the topic. ECC students from the performing arts program assisted in the voice over work needed to explain each module to students enrolled in the MOOC. The MOOC had 31 registered students at the beginning of the program. As the four week MOOC continued, students either dropped the course or did not complete the assignments or assessments. However, several students emailed the assigned instructors (an administrator from Financial Aid or Student Accounts) with great paying for college questions, seeking resources, or interested in ECC's offerings. The MOOC was not continued in later years.

Continue to provide education to faculty on financial aid policies and procedures that impact students' ability to pursue their education.

Progress reported: The Financial Aid office works with faculty on an on-going basis to verify students' attendance and last date of attendance to accurately award financial aid. These informal, individual communications have proven to be effective in sharing and explaining financial aid policies and procedures to faculty.

Identify opportunities and methods to provide new faculty with information on financial aid policies and procedures.

Progress reported: The Financial Aid office has continued their collaborative efforts and work with the TLSD Operations department who disseminate important information to the faculty and other college

	groups. There is an opportunity to continue efforts to reach new faculty as they become familiar with ECC's overall policies and procedures. **Continue efforts to 'go green' and look at new paperless initiatives within the financial aid process.** Progress reported: The Financial Aid office discontinued mailing student award letters for the 2016-2017 academic year. This equated to approximately $2,000 to $2,500 in savings per year in mail postage. Additionally, in September 2017, the Financial Aid office launched the Ellucian self-service financial aid module where students can access their current (and previous) financial aid information including their required documents, award letters, and current satisfactory academic standing. **Additional accomplishments since FY15 (not related to FY15 goals):** The Financial Aid office continues to support the financial literacy program developed in 2009. The department participates in dozens of presentations and events throughout the year. Additionally, the emphasis on educated loan borrowers is evident by the continued decrease of the amount borrowed and number of students borrowing loans.
What are the identified or potential weaknesses of the program?	The financial aid office has an opportunity to evolve with the digital age whereas opportunities to communicate with students via text are on the horizon. Additionally, the office has an opportunity to scan student financial aid documentation to better utilize space and widely access information from the staff's desktop versus the physical file room. Frequently, the challenge of adequate human resources to further outreach into the community arise and may hinder the development of technological advances with only 1 ½ FTE in information systems devoted to the entire Business and Finance division. Much of the work and future efforts needed to reach goals are founded in human resources. While not a weakness of this particular office, recent conversations among financial aid professionals state-wide are focused on the uncertainty of regulations due to the incomplete reauthorization of the Higher Education Act, whether gainful employment regulations will be rescinded, the remaining complexity of the FAFSA due to the complexity

	of our student's home and personal situations, and how to better communicate with students and parents.
What are the program's strengths?	The Financial Aid Office excels in balancing the need for strict regulatory compliance to financial aid rules while providing outstanding customer service to students, families, and community members. The office management demonstrates excellent support and leadership, and sets a student-focused environment for staff to feel empowered and well equipped to help students even in complex situations. In 2018, the Financial Aid office along with Dr. Sam and Trustee Duffy presented at the Association of Community College Trustee conference the outreach and outcomes made by the department. In Spring 2019, the financial literacy event "How to Win at Life" sponsored by the Financial Aid office was highlighted during Senator Tammy Duckworth's visit to the College. Elgin Community College remains a pioneer in the depth of its financial literacy program as compared to regional counterparts at other community colleges. For the last eight years, ECC has delivered one-on-one loan counseling as a critical element of the Financial Smarts program. This counseling begun during a high enrollment season but without increasing staff needs within the office. Today, one-on-one counseling has proved to be effective as the college's loan portfolio has reduced by 60% since 2010. Additionally, ECC's interactive financial game, "How to Win at Life", developed in 2012 has been replicated at many schools locally and nationally including College of DuPage and California State University, Sacramento.
Rationale Detail all major findings resulting from the current review.	**DISCUSSION OF NEED** **<u>Services</u>** The services provided by the Financial Aid office strive to deliver thorough and helpful guidance throughout the financial aid process. This guidance provides a framework of knowledge for the student to use as they apply for financial aid at their transfer college or university. Additionally, during the one-on-one loan counseling session, students create a personal budget with their financial aid advisor which not only develops their financial literacy skills but transforms them into an educated borrower. See services graphics chart at the end of this report chapter.

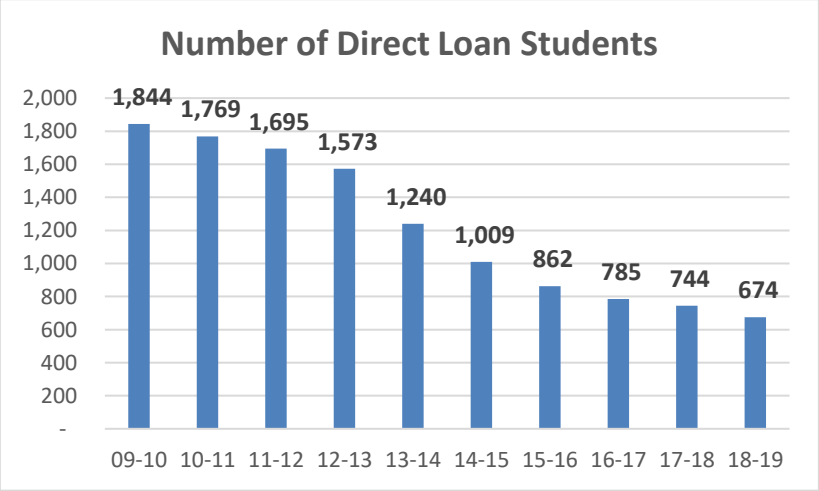
The further development of community partnerships will need more discussion as to the current capacity of staff and other internal partners within the financial literacy program.

Utilization

The array of services is appropriate to meet the needs of our current student population. The entire financial aid office staff work in concert to assist students on an individual basis and also think broadly on ways to reach those students who do not enter our office. This is a great strength and a testament to an effective staff group. For the 2018 calendar year, the office saw 18,629 walk-in visitors, received 5,426 files to award, and made 3,342 out-going calls to students and community members. However, as the office's goal is to reach more community partners, it will be difficult to maintain high quality service in the office and deliver further outreach with the same staff size.

The Financial Aid office supports dual-credit and early college programs by participating in many high school presentations sharing financial aid information and processes including students who participate in dual credit. Additionally, the financial aid office has a close partnership with area high school guidance counselors whereas ECC's financial aid office serves as a knowledgebase for financial questions and on-campus employment options.

An important trend the Financial Aid office monitors is ECC student loan borrowing. The following charts depict the continued decrease of the loan portfolio and importance of the one-on-one loan advising. It is anticipated that student loan borrowing will continue to decrease in the future.



Staffing

The Executive Director oversees the program with the great assistance from the Financial Aid director, manager, and staff to carry out program delivery.

DISCUSSION OF COST

Budgeting

The Financial Aid office is proud to have maintained a steady budget over the last five years. With the implementation of the online award letter and financial aid module, the department has been able to lower printing and mail expenditures. There are no large or significant changes in ongoing expenses or revenues in the next five years.

Efficiencies

A key element to the department's ability to maintain cost-efficiency is the maximization of every head count in the office. The front desk staff (all part-time staff) are empowered to answer the majority of the complex questions that may arise from students and parents. The financial aid advisors then focus on awarding and loan counseling sessions. The office managers then provide the foundation of compliance oversight and service excellence. Weekly staff meetings provide an opportunity for staff to voice what works, what isn't working, and management's immediate attention for resolution. Without this focus on efficiency, the need for a larger staff size to maintain basic operations would be requested through the budget process.

Resources

Currently, the staff size is adequate, however, if enrollment were to sharply increase or community partnerships grow significantly, there may be needs in support of the front desk staff (e.g. turning a part-time position into a full-time staff member or additional advisors).

DISCUSSION OF QUALITY

Assessment

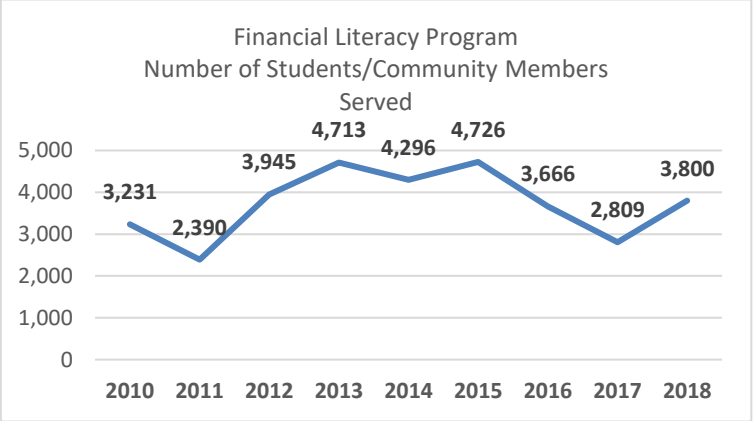
The Financial Aid office uses a variety of methods to evaluate and improve services to students and families through ongoing review and discussion of:

- ECC's student survey and/or focus groups when made available.
- The Noel-Levitz *National Freshman Motivation to Complete* report. These statistics help validate the need for our

financial literacy program and office service philosophy to students. In the 2018 report:

- 58% of freshman at two-year colleges indicate they have financial problems that will interfere with their school work
- 28% of freshman at two-year colleges indicate they have financial problems that are very distracting.

- Evaluation forms at financial literacy events and anecdotal comments made by the participants. The financial aid office conducts a debrief session of all major events to identify areas of improvement.
- Level of participation in financial aid and financial literacy events, displayed below.



The Financial Aid Office assists students as they consider dropping courses and perhaps struggle with their overall academic progress. The front desk staff counsel students on how their financial aid might change if they drop a course(s) and the impact on their satisfactory academic progress. Additionally, the staff will provide alternative options such as seeking guidance from the instructor to improve their performance, tutoring, or speaking with their academic advisor. This approach was supported by the college's *Stop Before You Drop* campaign. The other student service offices support this collaborative and holistic approach to student success where we can work as a cohesive group of offices.

Financial Aid Services contributes to student learning, specifically along several of the college's general education outcomes:

- Communication: Through interactions with the office staff and participation in the financial literacy events, students further develop their verbal communication skills. Additionally, students further develop their

writing skills through the scholarship application process.

- Quantitative Literacy: As students develop their budgets during one-on-one loan counseling, students enhance their measurement of financial resources skills and then able to make conclusions based upon that data.
- Critical Thinking: The financial aid process can be complex and confusing especially for first-time students and families. The use of critical thinking skills to understand, evaluate, and make conclusions during the paying for college process is essential for a positive experience.
- Global and Multi-cultural Literacy: Students will interact with a variety of backgrounds and cultures within the financial aid office. Additionally, some students discover how their ethnic background interacts with the legal regulations of federal financial aid. However, if federal financial aid is not accessible, alternative resources such as applying for ECC Foundation scholarships are encouraged to the student.

Availability

In analysis of the effective ways to reach students and families, it was noted that ECC's on-campus events were not being well attended by community students and families as compared to years prior. Therefore, the on-campus financial literacy sponsored events were limited to one in the fall and one in the spring. However, an increasing need was voiced by the area high schools to have financial aid presentations made on their campuses. Therefore, in 2018, the financial aid office assisted in 11 unique financial aid presentations or events at five area ECC feeder high schools. The total number of students and families who participated was 802 students and family members.

Partnerships

The Financial Aid office has begun a focus on community partnerships within the last year. This focus aligns with the strategic goal to strengthen educational and workforce partnerships. ECC has partnered with KCT Credit union to provide an external financial resource for students during our "How to Win at Life" game.

Stronger collaborations have been built with the Elgin Boys and Girls Club and the Boys and Girls Club of Dundee Township. In the 2018-2019 academic year, 13 clubhouse

members experienced a four-part series of information about how to go to college. These high school students were selected by their BGC mentors and were introduced to the college experience. The financial aid/financial literacy session was an interactive Family Feud style game where students competed in answering questions about financial aid. Despite their unfamiliarity to the topic, the engaging and fun nature of the game left the students reciting such things as the date the FAFSA is available every year, what grant is available from the federal government, and what is the average student loan interest rate during the session's wrap-up.

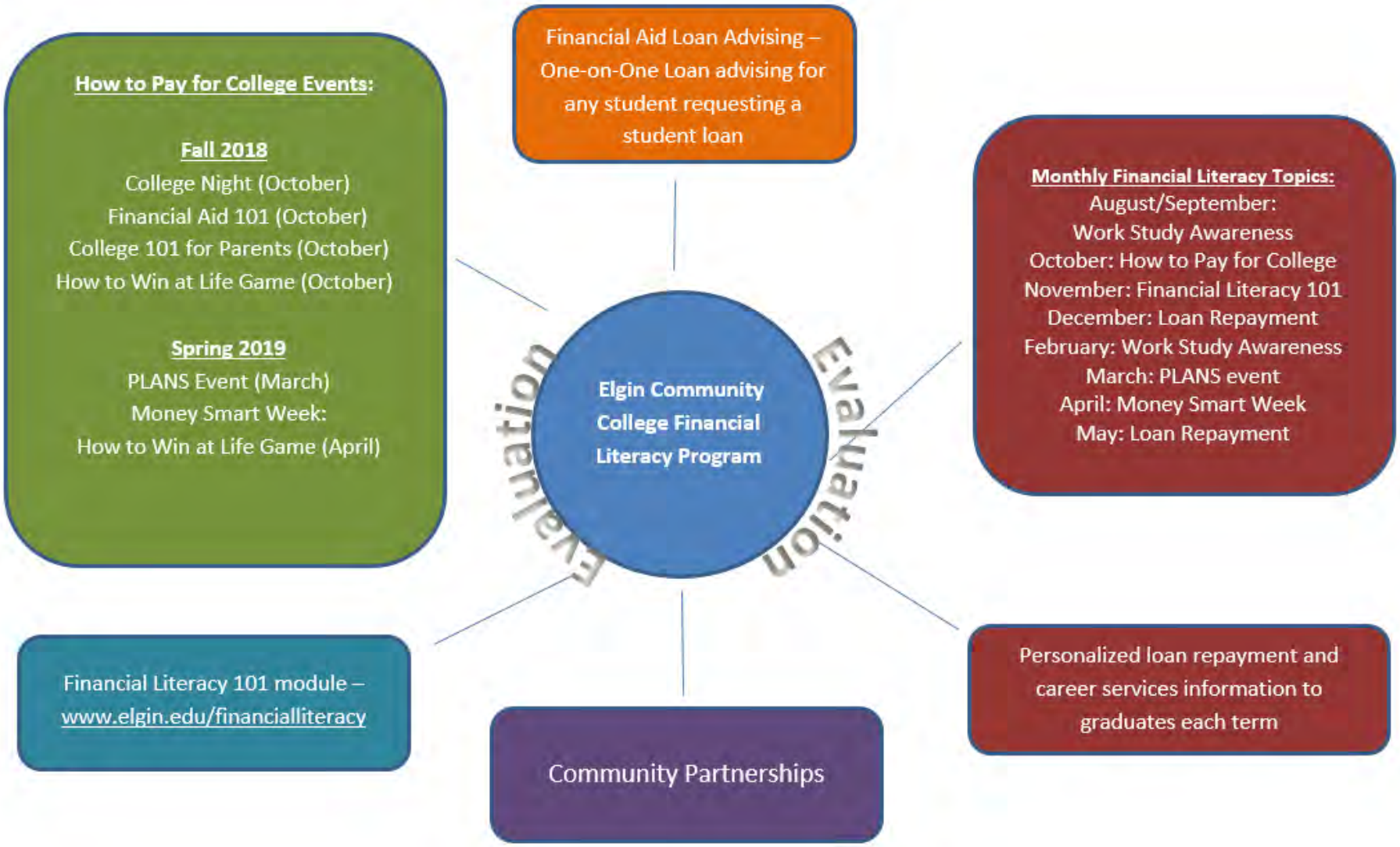
This workshop series was supported by new initiative funds and spearheaded by the office of legislative affairs and community partnerships. Afterwards, both clubhouses expressed the desire to further develop how ECC's Financial Aid office can serve their students and families in the future.

The department also considers itself a partner within the college. The Financial Aid office's collaborative nature lends to a comprehensive program involving many key internal partners such as Student Accounts, Career Services, Registration, and Accounting services. Additionally, many area community colleges have visited ECC to learn more about our financial literacy program. For example, College of DuPage and College of Lake County visited ECC to learn about the components of ECC's program and how to implement a similar program with limited financial and human resources.

Personnel

The Executive Director is a member the National Association of College and University Business Officers' student financial services council where emerging and current trends and legislation is discussed at a national level. Additionally, the director participates in the annual Federal Student Aid conference to learn from the Department of Education of important compliance and regulatory matters. The administrators and staff are members of the National Association of Student Financial Aid Administrators and the Illinois Association of Student Financial Aid Administrators. Furthermore, state, regional, and local discussions exist among community colleges to discuss student issues, best practices, and emerging trends. All of these discussions are shared at the Financial Aid office weekly staff meeting.

Intended Action Steps Please detail action steps to be completed in the future based on this review with a timeline and/or anticipated dates.	**FY2020:** • Further develop and promote the work study program with the use of the newly implemented E-talent system • Continue and refresh staff development opportunities • Further develop the Boys and Girls Club partnership – on-campus and off-campus outreach efforts for the Elgin and Dundee Township clubhouses **NEXT FIVE YEARS:** • Establish a system to adequately service the multitude of third party vouchers and employer funded assistance used by students and how it interacts with federal financial aid (e.g. WIOA, apprenticeship program, credit corporate training). • Promote and secure additional partnerships with area community agencies beyond the Boys and Girls Club. • Develop a compliance oversight team and review cycle (currently, the Director of Financial Aid, Bursar, and Executive Director meet to discuss new and changed compliance rules when able) to better prepare the Financial Aid office in the event of a Department of Education program review. **REQUIRED RESOURCES:** The resources that may be needed are additional staff to promote and secure additional external partnerships to deliver financial aid and financial literacy outreach. Additionally, as more third party payers such as employers and employment agencies look to fund students' education, there may be a need for a staff member to oversee this complex and high student touch process.


How to Pay for College Events:
Fall 2018
College Night (October)
Financial Aid 101 (October)
College 101 for Parents (October)
How to Win at Life Game (October)
Spring 2019
PLANS Event (March)
Money Smart Week:
How to Win at Life Game (April)
Financial Aid Loan Advising – One-on-One Loan advising for any student requesting a student loan
Monthly Financial Literacy Topics:
August/September:
Work Study Awareness
October: How to Pay for College
November: Financial Literacy 101
December: Loan Repayment
February: Work Study Awareness
March: PLANS event
April: Money Smart Week
May: Loan Repayment
Evaluation
Elgin Community College Financial Literacy Program
Evaluation
Financial Literacy 101 module – www.elgin.edu/financialliteracy
Community Partnerships
Personalized loan repayment and career services information to graduates each term

Prior Review Supplemental Information

Include updates on programs reviewed in prior years for which action was taken during the current year and/or changes resulted from planning and quality improvement initiatives. This report is only for programs that are not already scheduled for review and for which results are not already being reported under another template.

College Name:	Elgin Community College
Fiscal Year Reviewed:	FY2019
Review Area/Program:	Academic Support: The Write Place and Math Lab
Action	☒ Continued with minor improvement ☐ Significantly modified ☐ Discontinued/Eliminated ☐ Placed on inactive status ☐ Scheduled for further review ☐ Other, please specify:
Detail all major findings, improvements, or modifications resulting from the prior review.	In FY18, the Tutoring Center completed its program review report. Since then, a departmental reorganization has shifted responsibility of the Math Lab and The Write Place instructional support centers under the Tutoring umbrella, with the unit now called Academic Support Services. This restructuring will promote greater communication and coordination of services. **PURPOSE:** • The Math Lab is designed as a space near the mathematics classrooms for students to collaborate on their coursework. Break out rooms provide an inviting environment for study groups. Math faculty are available to answer questions and provide direction on problems and homework. • The Math Lab's philosophy emphasizes the importance of discovering and meeting student needs rather than relying on a "mechanical" approach to solving math problems. • The Math Lab provides additional support to students by hosting various workshops such as Graphing Calculators and Final Exam Study Review geared towards students in courses with lowest

	retention rates: Pre-Algebra, Beginning Algebra, Intermediate Algebra, Combined Beginning and Intermediate Algebra, College Algebra and General Education Statistics. • The Math Lab also strives to assist students with the placement process, provide methods to prepare for testing, and explain various course sequence options. There is a narrow window between Admissions and Registration, and support via the Math Lab is critical for preparing students and getting them ready to move forward within the department to fulfill their personal credential goals. • As secondary goals, participation in the Math lab develops students' self-advocacy skills. • The Write Place is a non-threatening, friendly environment for students to get enthusiastic, expert coaching in every aspect of academic writing, including scholarship and college transfer essays. Although a tutoring session may last for as little as 10 minutes or (depending on attention span and student demand) longer than an hour, students frequently remain for several hours after the session, working on their assignments, asking questions, and getting feedback. • It is a key distinction that The Write Place follows the general tutoring technique: *assisting* students so that they become better writers themselves rather than being editors for students. Staff will also *model* internet searches and the use of other reference sources as tools for learning and writing. • The Write Place Director has strongly emphasized having the tutors give examples from the students' work, and demonstrate strategies for revision and editing, but leaving the students plenty of room to practice applying those strategies in their own writing. (Concretely, the student must always be holding a pencil or pen and taking notes during the session, and the tutor must minimize his or her written marks on the work.) • Although tutors write out examples as part of demonstrating the skills being focused on, they do not write on the students' papers. Students themselves are writing during the session, both revising and editing their own writing, and taking

notes on what the tutor's show and tell them. And tutors seldom work all the way through a piece of writing with a student, so that part of every session involves the student's independent practice of the skills covered. This approach takes more time, work, and skill than simply editing for students, but results in real improvement in their writing skills.
- Although this does not seem like an appropriate major goal for a writing center, tutors regularly encourage reluctant students to contact instructors about their questions and self-advocate for their own learning.

LEARNING OUTCOMES:

For all Tutoring Center services, students will be able to:
- Identify gaps in their own content knowledge or preparation and ask appropriate questions
- Gain confidence in their academic abilities
- Advocate for themselves in the classroom
- Manage their study time effectively

Math Lab:
- Use appropriate technology to complete their content assignment tasks successfully
- Collaborate with other students on group work
- Use the Math Library housed in the Math Lab for print resources
- Work on assignments and projects and study in a safe and accommodating environment
- Increase their chances of successfully completing their math classes

The Write Place
- By planning, drafting, revising, and editing their own work, students will demonstrate improved writing skills.
- Students will become more skilled at using resources like websites, Google, reference books, handouts, and their own textbooks.
- Students will become better at communicating with their instructors about writing assignments.
- Students will develop the habit of treating writing as a process requiring application over a period of

time, rather than something done at the last minute and in a rush.
- Students will develop a stronger sense of the importance of paying attention to details.
- Students will develop a stronger sense of ECC as a community of which they are a part, dedicated to everyone's success.

UTILIZATION DATA:

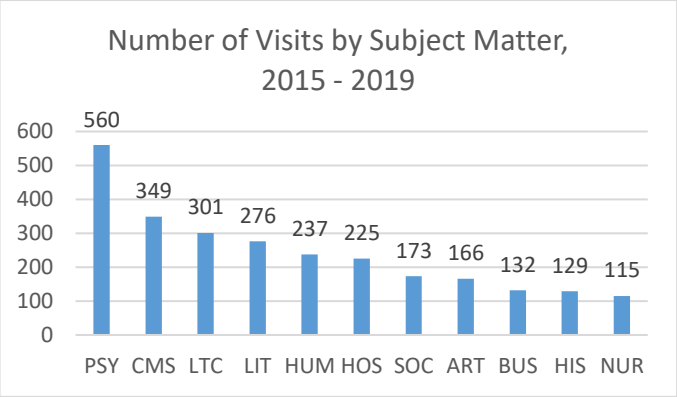
The Math Lab

- Student usage of the Math Lab is consistently high. Roughly 3,600 student visits occur each semester (for fall and spring semesters from 2013-2018). In the future, the most likely change in usage will be more students seeking help in college-level math courses as opposed to developmental math courses.
- Usage and services has grown over the past several years. Final Exam Review sessions had highest attendance in SP19. An additional faculty facilitator will be added to peak hours in Fall 2019, and the Math Lab will open at 8 a.m. instead of 9 a.m. to meet student need.
- Demographic analysis of students attending Math Lab has concluded the visitors are generally representative of the overall student population, with the exception that slightly fewer white students and male students used the Math Lab compared to the school's population at large.

The Write Place

- Student usage of The Write Place reflects the college's trends in overall enrollment, decreasing slightly over the past five years, and averaging approximately 2,650 visits annually.
- Most users of The Write Place (63%) are working on assignments for English classes, which is understandable, given that composition courses are required for almost all degrees. However, The Write Place helps students who have writing assignments for classes on subjects ranging from nursing, to hospitality, to calculus, as well as helping with scholarship and college transfer application essays, and polishing language in

resumes. Below illustrates the remaining course visits 2015 to 2019.



- Given the vast majority of visits related to English coursework, moving forward, all English tutoring will be offered exclusively through The Write Place, which is expected to increase the usage figures.
- Write Place visitors are generally representative of the overall student population, with the exception that fewer white students and far fewer male students compared to the school's population at large.

ACCOMPLISHMENTS:

- The recent restructure has allowed the Math Lab, Write Place, and Tutoring Center to reflect on their services in relation to each other, perhaps for the first time. The Write Place will be taking on additional services as a result of the restructure to better serve ECC students. This supports a key element of the college's strategic plan, to "Systematically use evidence to guide academic and operational improvements & redirect resources for maximum impact."
- Position descriptions for the Math Lab and Write Place Directors were updated. Adjusted compensation for those positions was approved in the Supplemental Assignment Chart for Faculty in February 2019.

The Math Lab

- The director, an adjunct faculty member, was awarded a sabbatical for the Fall of 2018 to study peer schools and exemplary practices. His findings were summarized for Board of Trustees

	Spring 2019 and have become some of the primary goals and recommendations of this report. • Of note, the current ECC Math Lab ECC's Math Lab offers more extracurricular activities than many peer institutions. • The Math Lab Library, its study rooms, the faculty support for math placement tests and software used in math courses are all resources that make the Math Lab an attractive resource for students. • Institutional Research recently did an analysis of students visiting the Math Lab from Fall of 2016 through Spring of 2019. They found that overall, 72% of students that visited the Math Lab were successful in their math courses compared to a 62% success rate for students that did not visit the Math Lab. This pattern held for both college-level and developmental courses. Some variation was noted by specific course. • Via the departmental reorganization and this program review, the Math Lab Director position and duties were revised, with an increase to the compensation. <u>The Write Place</u> • The Write Place has increased the number of students helped, improved coordination with instructors and other departments and services, and improved the quality of service to students, through recruitment of skilled tutors, training, and sustained focus on best practices. • The planned service consolidation between Tutoring and The Write Place will make the assistance services more convenient and less confusing for students. • Institutional Research recently did an analysis of students visiting The Write Place since 2014. They found that overall, 85% of students coming in for their English, Literature or LTC class were successful (grades A – C), as compared to a 71% success rate for those in the same classes who did not visit that term. • During the past five years, staff have attended multiple trainings. The first was a day-long workshop, presented by a professor from College

	of Lake County well-known in her field, to help our tutors better understand and work with our many ESL students. The training was so useful that the following year the same speaker was engaged to present her workshop to the English Department, and several tutors from TWP also attended. • One of the most valuable connections has been with ECC's ESL program; its director has encouraged ESL instructors to bring their classes to The Write Place to learn about available services, and instructors have done this, and found the visits useful. The ESL Director has also encouraged adjunct ESL instructors to apply as Write Place Tutors, and both the ESL Director and her instructors have provided valuable information, reference sources, and contacts. • In the fall of 2018, the ESL Director mentioned the possibility of stationing an ESL tutor at The Write Place; this is an idea worth pursuing. • To help introduce the services to ESL students, Write Place tutors have started using an innovative tactic in the form of a demonstration. A student volunteer brings a draft of the current assignment, and a tutor goes through an abbreviated version of the tutoring process with that student. Such a demonstration seems to reduce student anxiety about coming to the Write Place. • Evening hours were added on Mondays and Tuesdays and revisions to the instructor referral form have been made as a result of Write Place staff meetings. Consideration will be given to adding availability on Saturdays. • The Write Place will also begin using new scheduling software that will allow students to make appointments as well as continue using the Write Place on a drop-in basis. The Write Place will also start using D2L for online student support. **CHALLENGES:** • One of the biggest challenges for the Math Lab, The Write Place and the Tutoring Center overall is getting students to understand the benefits of

	using these resources *early* in the semester. Many students don't know or don't think to show up until the end of the semester or when their grade is in severe trouble. The challenge is getting information about the services out to students in as many ways as possible as often as possible so they know what support is available. • To that end, syllabus inserts are provided to faculty which promote the benefits of the Math Lab and The Write Place to instructors before the beginning of a semester. • Each center also aspires to get into as many classrooms as possible to directly share information about services with students and faculty. Some faculty will even bring an entire class of students to The Write Place as part of a lesson, and/or offer extra credit for attending. • Information sheets are also sent directly to students at least twice per semester, and services are communicated through table tents, posters, Access ECC announcements, and messages on the monitors in the halls. • Efficient scheduling of classes could improve the scheduling process for the Math Lab and the Write Place, as many facilitators and tutors are also classroom instructors. Changes to teaching schedules can impact their availability for the support centers. • A current challenge unique to The Write Place lies in improving access to services for students who have limited time to visit the physical location in Building B. Up until now, students are helped entirely on a drop-in basis, and this approach has mostly worked well. However, during the busiest hours on the busiest days towards the end of the semester, students have occasionally not had time to wait until a tutor was free to help them. Tutoring by appointment will be added as soon as the new student data-collection system is in place. This will not replace drop-in tutoring, which offers a different type of flexibility to students. • Another major finding during this program review was that record-keeping efforts need to be improved dramatically in all instructional support areas, instead of relying on hand-written student

information and excel-based systems. Already used by Advising, new SARS software will help collect student usage information and improve the ability to investigate trends with reliable information as a source.

RESOURCES NEEDED:

- As mentioned above, one of the greatest current needs is for a more robust and reliable student tracking system. The project is earmarked for funds from Perkins grants to purchase and implement software that will allow students to log into their visits to different campus offices including the Math Lab, the Write Place, the Tutoring Center, as well as others.
- Increased funding has also been identified for faculty facilitators within the Math Lab to expand service hours and staff availability during peak times.
- If student demand increases, the Write Place may look into scheduling additional tutors during all open hours and expanding its open hours to include Saturdays. This is not a necessity at this point. Currently, online tutoring is handled through D2L. If there is a decision to upgrade to synchronous online tutoring through Zoom (which has a partnership with the current SARS scheduling software), there would be additional subscription costs down the line.
- Historically, the Math Lab and The Write Place have not had dedicated budget lines for office or instructional supplies. These will be in place for FY20

GOALS:

Within the *next year*

- Develop and implement training and professional development materials and programs for faculty facilitators, tutors and student workers
- Plan implementation process for new student-tracking software
- Increase advertising efforts so students, staff, faculty, and the community are aware of services and mission (ongoing)
- Expand Math Lab hours (open at 8:00 am instead of 9:00 am)

	• Add a second faculty facilitator during Math Lab peak hours **Within the *next five years*:** • Monitor student/faculty needs and continue to examine and revise services offered by each center • Develop surveys and other methods of soliciting student and faculty feedback • Collaborate with other units on campus to provide support to students in new ways • Discuss additional ways Math faculty can connect their students to the Lab, such as small group projects, computer-based assignments, and written reports. • Examine options for improving online tutoring for written assignments (The Write Place)

ECC 5-Year Program Review Schedule

KEY: Modified, prior arrangement | Moved to match ICCB schedule | Not required by ICCB

ECC Division	Program	Category	CIP Category	FY19	FY20	FY21	FY22	FY23
Adult Education	ABE/ASE	Cross-Disciplinary			X			
	ESL	Cross-Disciplinary			X			
CABS	Anthropology/Human Geog.	Academic	Social/Beh. Sciences			X		
	Communication Studies	Academic	Communications				X	
	Developmental ENG/RDG	Cross-Disciplinary		X				
	Early Childhood Education	Career-Tech	Teacher Ed			X		
	Education	Academic	Social/Beh. Sciences			X		
	English	Academic	Communications				X	
	Journalism	Academic	Communications				X	
	Literature	Academic	(Fine Art)				X	
	Psychology	Academic	Social/Beh. Sciences			X		
	Reading	Academic	Communications				X	
	Sociology	Academic	Social/Beh. Sciences			X		
HP/MSE - HP	Basic Nursing Assistant	Career-Tech	Nursing		X			
	Clinical Lab	Career-Tech	Medical Lab	X				
	Dental Assisting	Career-Tech	Dental					X
	Health/Wellness	Career-Tech	Fitness Studies	X				
	Histotechnology	Career-Tech	Medical Lab	X				
	Massage Therapy	Career-Tech	Massage Therapy				X	
	Medical Imaging - Advanced	Career-Tech	Diagnositc					X
	Medical Imaging - Radiography	Career-Tech	Diagnositc					X
	Nursing	Career-Tech	Nursing		X			
	Physical Education	Academic	Physical/Life Science			X		
	Physical Therapist Assistant	Career-Tech	Health Asst.			X		
	Surgical Technology	Career-Tech	Clinical Science					X
	Astronomy	Academic	Physical/Life Science	X				
	Biology	Academic	Physical/Life Science	X				
	Chemistry	Academic	Physical/Life Science	X				
	Developmental Math	Cross-Disciplinary						X

KEY: Modified, prior arrangement | Moved to match ICCB schedule | Not required by ICCB

ECC Division	Program	Category	CIP Category	FY19	FY20	FY21	FY22	FY23
HP/MSE -MSE	Engineering	Academic	Physical/Life Science	X				
	Geology	Academic	Physical/Life Science	X				
	Mathematics	Academic	Mathematics					X
	Physical Geography	Academic	Physical/Life Science	X				
	Physical Science	Academic	Physical/Life Science	X				
	Physics	Academic	Physical/Life Science	X				
LRIE	Distance Learning	Student/Aca. Support			X			
	International/Study Abroad	Student/Aca. Support				X		
	Library	Student/Aca. Support			X			
	Tutoring	Student/Aca. Support						X
LVPA	Art	Academic	Fine Art		X			
	Communication Design	Career-Tech	(Design Technology)		X			
	History	Academic	Humanities		X			
	Humanities	Academic	Humanities		X			
	International Studies	Academic	Humanities		X			
	Modern Languages	Academic	Humanities		X			
	Music	Academic	Fine Art		X			
	Music Production	Career-Tech	(Comm. Technology)		X			
	Political Science	Academic	(Social/Beh. Sciences)		X			
	Theater	Academic	Fine Art		X			
SBCT	Accounting	Career-Tech	Business, General	X				
	Automotive	Career-Tech	Vehicle Repair			X		
	Business (replace MMT, MMR, ENT, MKT)	Career-Tech	Business					X
	CIM/IMT	Career-Tech	Engineering Tech				X	
	Computer-Aided Design	Career-Tech	Engineering Tech					X
	Criminal Justice	Career-Tech	Criminal Justice				X	
	Culinary, Hospitality, Pastry	Career-Tech	Culinary					X
	Digital Technologies (CIS & OAT)	Career-Tech	Admin Support				X	
	Economics	Academic	Social/Beh. Sciences			X		
	EMT-B	Career-Tech	Fire Protection					X
	EMT-P	Career-Tech	Clinican Science					X

KEY: Modified, prior arrangement | Moved to match ICCB schedule | Not required by ICCB

ECC Division	Program	Category	CIP Category	FY19	FY20	FY21	FY22	FY23
	Energy Management	Career-Tech	(Environ. Control)	X				
	Fire Science & Safety	Career-Tech	Fire Protection					X
	HVAC	Career-Tech	HVACR	X				
	IST/Maintenance	Career-Tech	Industrial Equipment			X		
	Paralegal	Career-Tech	Legal Studies				X	
	Public Safety Communication	Career-Tech	Homeland Security					X
	Supply Chain Management	Career-Tech	Admin & Mgmt					(new)
	Truck Driving	Career-Tech	Ground transport			X		
	Welding	Career-Tech	Precision Metal	X				
SSD	Admissions	Student/Aca. Support					X	
	Advising	Student/Aca. Support			X			
	Athletics	Student/Aca. Support				X		
	Career Development Services	Student/Aca. Support						X
	Disability Services	Student/Aca. Support			X			
	General Student Development	Academic	Social/Beh. Sciences			X		
	Recruiting	Student/Aca. Support					X	
	Registration & Records	Student/Aca. Support					X	
	Student Life/FYE	Student/Aca. Support				X		
	Wellness	Student/Aca. Support			(new)			
Finance	Business Services	Student/Aca. Support			(new)			
	Financial Aid	Student/Aca. Support		X				
Workforce Development	Vocational Skills	Cross-Disciplinary				X		