ICCB Program Review Report

WAUBONSEE
COMMUNITY COLLEGE

September 2023

PROGRAM REVIEW COVER PAGE	
COLLEGE	Waubonsee Community College
DISTRICT NUMBER	District 516
CONTACT PERSON (NAME, TITLE, CONTACT INFORMATION)	Dr. Kathleen Gorski, Dean for Learning Outcomes, Curriculum and Program Development. kgorski@waubonsee.edu 630-466-2280
FISCAL YEAR REVIEWED:	FY23

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Program Review Report FY2023
Waubonsee Community College

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Career & Technical Education

College Name:	Waubonsee Community College
Academic Years Reviewed:	FY2018-FY2022

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
Business Administration	A.A.S	60	52.0201	Administrative Assistant (18 credit hours) Management (18 credit hours)

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 within this template or results may be reported within its own template. This is at the discretion of the college.

Program Outcomes 1. What are the outcomes of the program? *(i.e., what are the program learning outcomes? What occupations is this program intended to prepare students for?)*	1. Apply managerial theory to resolve business issues. 2. Analyze ethical issues as they apply to business administration. 3. Discuss the legal implications of decisions made in business. 4. Develop a marketing plan based on research that employs an effective marketing strategy. 5. Evaluate financial statements as they apply to the business environment.
2. To what extent are these outcomes being achieved? Please detail how achievement of program outcomes is being measured or assessed. How do you know if and how outcomes are being achieved? *This may include employment rates of graduates, passing exam/licensure rates, assessment of students meeting Program Learning Outcomes, etc.)*	Student performance of the program outcomes is determined through assessments given by faculty that are aligned to the course outcomes. Outcomes are being achieved based on outcome assessment results. The aggregate data below demonstrates success rates above targets. MKT 200 Principles of Marketing Achievement target: 75% or higher on summative assessment questions aligned with course outcomes. 74 of 89 students (83%) successfully met the target for outcome 1. 80 of 89 students (90%) successfully met the target for outcome 2. 72 of 89 students (81%) successfully met the target for outcome 3. 72 of 89 students (81%) successfully met the target for outcome 4. BUS 215 Business Ethics Achievement target: 80% or higher in each rubric category for the final current event analysis. Overall, 83% of student achieved 80% or higher on the current event analysis aligned with course outcomes.

Past Program Review Action 3. What action was reported last time the program was reviewed? Were these actions completed?	The following actions were reported during the last five-year review in 2018: 1. Collect and analyze assessment for program outcome for ethics by December 1, 2018. 2. Create curriculum sequence for program by May 2019. 3. Review course outlines for program by May 2019. All these actions were completed.
Review Team 4. Please identify the names and titles of faculty and staff who were major participants in the review of this program. Also describe their role or engagement in this process.	The following faculty and staff were major participants in the review of this program: Steven Skaggs, Professor of Business and Information Systems Andy Clements, Instructor of Business Dr. Nour Al Naber, Instructor of Business Toni Ford, Sr. Program Development Coordinator Chadd Engel, Sr. Outcomes Assessment Coordinator Engagement in this process: The team met frequently in the fall semester of 2022 to discuss and complete the program review. Chadd Engel and Toni Ford supported the process and supplied data. Faculty used resources provided to complete the review questions.
Stakeholder Engagement 5. Please list other stakeholders and participants who were engaged in this process (i.e., Student Support Services, students, employers, etc.) Also describe their role or engagement in this process.	An additional stakeholder is Waubonsee's Institutional Effectiveness (IE) Office. The IE team provided the data needed to complete the review.

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.

6. Were pre-requisites for this program (courses, placement scores, etc.) analyzed as part of this review? If yes, please elaborate on any findings or revisions moving forward.	There are no prerequisites for entry into the Business Program. Course prerequisites were analyzed and at this time changes are not planned; however, faculty plan to ensure the appropriateness of the prerequisites for BUS 207 Business Statistics. Changes were made beginning fall 2022.
7. Provide a rationale for content/credit hours beyond 30 hours for a certificate or 60 hours for a degree.	There are no certificates or degrees with requirements beyond 30 or 60 credit hours.
Indicator 1: Need	**Response**

8. What is the labor market demand for the program? Cite local and regional labor market information. (1.1)	According to Lightcast, in 2022 regional employment is higher than the national average. Waubonsee's region includes 12 counties and has 770,471 positions. In the State of Illinois there are 1,046,680 positions. The national average adjusted for region size is 690,898 positions.
9. How has demand changed in the past five years and what is the outlook for the next five years? (1.2)	Demand over the past five years has increased 0.2% in Waubonsee's region, 2.1% in the State of Illinois, and 3.1% nationally. Over the next five-years, demand is expected to decrease by 2.2% in region, 0.4% in the State of Illinois and 1.9% nationally.
10. Does your enrollment have the capacity to meet the readiness of business and industry?	Waubonsee's Business Program meets the readiness of business and industry. Our current enrollment helps to support the needs of the industry in our district.
11. What labor market information sources are utilized and how often are LMI data reviewed? (1.3)	The labor market sources used include: • Lightcast • Bureau of Labor Statistics (BLS) • Illinois Department of Employment Security (IDES) These data are reviewed annually.
12. How does the institution/ program ensure that there is a sufficient "pipeline" or enrollment of students to fulfill the labor market need? (e.g., how/where are students recruited for this program?) (1.4)	To ensure a sufficient pipeline: Students are recruited at local high schools and affiliated vocational centers through individual college visits and college fairs. In addition, Waubonsee also reaches out to community organizations and local businesses to provide information about certificate and degree programs. The college also hosts open houses and recruiting events. Dual credit for high school students is offered for core courses required for the program. The Valley Education for Employment System (VALEES) helps with connecting high school students and college faculty by hosting events and showcasing the college program offerings. The Career and Technical Education Services Manager also provides resources and support to help CTE students overcome barriers to enrollment.
13. How are needs/changes evaluated by the curriculum review committee and campus academic leadership? (1.5)	Several processes are in place to review and evaluate changes to the curriculum: • Faculty participate in state and national organizations as well as industry advisory committees, to confirm industry needs and potential changes. • Faculty collaborate with deans regarding curricular changes. • All changes proposed by faculty are reviewed by Waubonsee's Curriculum Council. The Council is comprised of program faculty, academic deans, and other

	staff directly involved in curriculum. The Council is chaired by the Vice President of Educational Affairs. • A checklist is in place and completed prior to Curriculum Council to allow for discussions about the proposed changes.
14. Did the review of program need result in actions or modifications (e.g., closing the program, expanded industry partnerships, revised recruitment, reducing/expanding program offerings)? Please explain. (1.6)	The review of labor market data confirmed that there is a demand for a Digital Marketing Certificate Program. The business faculty plan to explore a creating a certificate program to meet this need.
Indicator 2: **Cost Effectiveness** *(see ICCB and system resources for cost-effectiveness: https://www.iccb.org/academic_affairs/program-review/)*	**Response**
15. How does the institution assess cost-effectiveness for CTE programming? Consider: • Costs to the institution associated with this program • How costs compare to other similar programs on campus • How the college is paying for this program and its costs (e.g., grants, tuition, fees (lab, technology, background checks, etc.). • Revenue Analysis • Student to faculty ratio • Course/section fill rates • Enrollment trends • Credit hours earned year to year • Scheduling efficiency (2.1)	The institution assesses cost-effectiveness for CTE programming by the direct costs associated with the program. These costs include: • Faculty salary and benefits (full-time and part-time) • Instructional supplies • Technology, software, and services • Publications and dues • Full-time faculty professional development
16. What are the findings of the cost-effectiveness analysis? (2.2)	The prefix cost per load hour for the Business Program is $2,402.87. This number is higher than the average prefix cost per load hour for transfer disciplines - $1,978.61, and lower than the average cost per load hour of other CTE programs - $3,368.67.

<table>
<tr><td>17. 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. (2.3)</td><td>This program is funded by the general education fund and is not dependent on grant or outside funding.</td></tr>
<tr><td>18. How does the institution/program assess student affordability for this program? (Consider if program costs are reasonable, comparable to like programs.)
(2.5)</td><td>The program evaluates students' ability to afford it by comparing its cost to similar programs. Based on data from IPEDS in 2021, the tuition and fees for Waubonsee's Business Program were lower than those of all other community colleges in the region with a business program, except for Moraine Valley Community College (see chart below).
<table>
<tr><th>College</th><th>IPEDS Tuition & Fees (2021)</th></tr>
<tr><td>College of DuPage</td><td>$9,750</td></tr>
<tr><td>Harper College</td><td>$9,870</td></tr>
<tr><td>Joliet Junior College</td><td>$12,570</td></tr>
<tr><td>McHenry College</td><td>$11,608</td></tr>
<tr><td>Morton College</td><td>$9,476</td></tr>
<tr><td>Waubonsee</td><td>$9,271</td></tr>
<tr><td>City Colleges of Chicago</td><td>$11,520</td></tr>
<tr><td>Moraine Valley</td><td>$8,118</td></tr>
</table></td></tr>
<tr><td>19. How does the institution/ program assist students in overcoming financial barriers to participate in this program? (e.g., WIOA, Ability-to-Benefit, scholarships, grant funding, referral to services, apprenticeship programming)</td><td>The institution/program offers various forms of financial assistance to help students overcome financial barriers to participate in the program. Students can explore their eligibility for financial supports available including financial aid, technology loans, the Perkins Support Program, the Emergency Needs Program, and Waubonsee Foundation Grants. Students may also be referred to WIOA partners for other available supports. Additionally, apprenticeships may be available for some CTE programs.

In addition, the institution/program may refer students to WIOA partners for other available supports, such as job training, education, and employment services. This can help students gain access to additional resources and support to help them achieve their educational and career goals.

Apprenticeship programs may be available for some Career and Technical Education programs. These programs provide students with hands-on training and experience in their field of study, while also earning an income to help cover their education costs. This can be an excellent opportunity for students to gain practical skills and experience while also receiving financial assistance to support their education.</td></tr>
<tr><td>20. How will the college increase the cost- effectiveness of this program?</td><td>The Business Program cost is lower than other CTE programs and disciplines at the college. The cost is also lower than like programs outside of Waubonsee. As a result, there is no need to increase cost-effectiveness for this program.</td></tr>
</table>

21. Did the review of program cost result in any actions or modifications? Please explain. (2.6)	The review of program cost did not result in any actions or modifications.
Indicator 3: Quality	**Response**
22. What are the delivery methods of this program? (e.g., traditional format/online/hybrid/team-teaching/ competency-based education, etc.)? How do the success rates of each delivery system compare? (3.1)	The Business Program is offered through the following modalities: **Face-to-Face**: Classes meet in a traditional classroom setting on one of Waubonsee's four campuses. **Flex:** All class sessions meet in-person in a Flex-equipped classroom and are simultaneously live-streamed and recorded through Zoom. After each class, the Zoom recording is posted in Canvas so that students may view or review each session. **Hybrid:** Hybrid classes are a combination of instruction and student participation occurring in-person in a traditional classroom on one of Waubonsee's four campuses and occurs asynchronously and/or synchronously online. **Online:** Online courses are delivered asynchronously. Students learn 100% online through Canvas. **Sync Online**: Sync Online courses are a combination of course instruction and student participation occurring synchronously online through Zoom on the scheduled days and times for the course. The success rates of each modality for Waubonsee over the past five years are listed in the table below: While the success rates for traditional face-to-face classes have improved, we are also carefully monitoring the success rate of all modalities. The sample size for flex classes is quite small, but the faculty members will monitor the success rates of flex diligently and recommend changes to the offerings, if necessary.

Success Rate by Modality	Traditional /F2F	Online	Hybrid	Flex	Sync Online	Total
FY18	59%	51%	76%			57%
FY19	62%	57%	59%			61%
FY20	78%	74%	75%			76%
FY21	83%	73%	76%	72%	76%	76%
FY22	78%	73%	70%	68%	73%	73%

23. How does the program ensure that instruction is quality, relevant, contextualized, and culturally responsive? (3.2)	To ensure high-quality instruction, the program integrates current events and pertinent materials into classroom learning activities and strives to make the instruction culturally responsive and relevant. Faculty members also avail themselves of professional development opportunities in the field of business and marketing.
24. Is this program part of a Program of Study as defined by Perkins V and approved by the ICCB? If yes, describe any strengths or challenge to program of study implementation. (3.3)	The Business Program is not a part of a Program of Study as defined by Perkins V.
25. Does this program meet the definition of a career pathway program? If so, please describe each career pathway element and identify how the college plans to improve the program as it relates to the career pathway system elements. (Examples include connections to adult education including integrated education and training, prior learning assessment, dual credit, support services, career services). If no, please describe if and how the college will improve the program based on the career pathway elements. (3.4)	The Business Program meets the definition of a career pathway. Below is a description of each career pathway element: **The Program aligns with the skill needs of industries in the economy of the State or regional economy involved.** According to the labor market report from Lightcast, the curriculum aligns to the skills needed for a career in business. **The program prepares an individual to be successful in any of a full range of secondary or postsecondary education options, including apprenticeships registered under the National Apprenticeship Act.** Dual credit, credit for prior learning, and transfer agreements to 4-year institutions are available within the BUS instructional sequence. **The program includes counseling to support an individual in achieving the individual's education and career goals.** All students are assigned to an Academic and Career Advisor who will, utilizing a case management model, guide/support them through completion of the program. For FY2022, an Academic Coach will be assigned to support students in the Business program. Equity reports providing disaggregated data for enrollment, completion, and success metrics by factors of race, gender and age are available for all CTE program faculty and administrators. This information will be utilized to identify potential equity gaps and develop strategies to address these gaps.

	The program includes, as appropriate, education offered concurrently with and in the same context as workforce preparation activities and training for a specific occupation or occupational cluster. The students in the Business Program are encouraged to participate in internship and apprenticeship opportunities, as appropriate. **The program organizes education, training, and other services to meet the particular needs of an individual in a manner that accelerates the educational and career advancement of the individual to the extent practicable.** Students are allowed to earn college credit while in high school through the dual credit program. In addition, students may take classes in the program in five different modalities. **The program enables an individual to attain a secondary school diploma or its recognized equivalent, and at least 1 recognized postsecondary credential.** There are no industry-recognized credentials embedded into the Business Program. Students, however, are qualified to sit for the Microsoft Office Specialist after completing certain courses offered within the program. **The program helps an individual enter or advance within a specific occupation or occupational cluster.** Internship and apprenticeship opportunities are available to students. While the Business Program does not offer customized corporate training, the division in which it exists does have a workforce development department that provides such services to employees and employers.
26. What innovations, that contribute to quality or academic success, have been implemented within this program that other colleges would want to learn about? (3.5)	One innovation that has contributed to academic success within this program is the faculty's focus on improving retention and success rates in the BUS100 Introduction to Business course. Faculty proactively utilized the Learning Management System to reach out to students who were struggling with assignments or participation. Faculty were able to increase student participation and improve their success rates. This resulted in an increase in success rates from 67% in FY2018 and FY2019 to 78% in FY2021 and 80% in FY2022. Withdrawals rates declined from 17% in FY2018 to 10% in FY2022. Utilizing the Learning Management System to track student progress and support student success through early intervention could be an innovation that other colleges would be interested in adopting to improve their own retention and success rates.

27. Describe dual credit implementation for this program (how many students, courses, participating high schools). What are the priority dual credit courses that are offered to high school students? (3.6)	The College offers the following dual credit: BUS 100: Introduction to Business at Aurora Central Catholic. Over the review period there have been 113 students who earned dual credit hours in BUS 100.
28. Identify what work-based learning opportunities are available and integrated into the curriculum. How do these opportunities improve the quality of the program? In what ways can these opportunities be improved? (3.7)	Work-based learning opportunities that are available to Business students include internships, which can be completed for elective credit, and an apprenticeship program with The Hartford, a leading property and casualty insurance company. The apprenticeship has been a successful offering for many years and allows students to earn a degree and nationally recognized insurance credentials while working for The Hartford and graduating without debt. These work-based learning opportunities provide students with the opportunity to make real-world connections between what they learn in the classroom and what is used in industry. This allows them to gain practical experience, develop skills, and apply theoretical knowledge in a real-world setting. Work-based learning also provides opportunities to network and make professional connections that can be helpful in gaining meaningful employment in the industries of their choice. To improve these work-based learning opportunities, the program could consider expanding the number of partnerships with industry leaders to provide students with more diverse and specialized opportunities. Additionally, the program could provide more support to students during their internships or apprenticeships to ensure that they are able to apply what they have learned in the classroom and have a successful experience. Regular feedback from students and industry partners could also be used to continuously improve the quality of these work-based learning opportunities.
29. 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, ASE). (3.8)	Industry accreditation is not required for the Business Program.
30. Are there industry-recognized credentials embedded within this program? If so, please list. (3.9)	Industry-recognized credentials are not currently embedded within the Business Program. However, it is worth noting that students are eligible to sit for the Microsoft Office Specialist certification after completing certain courses offered within the program. This certification is a globally recognized credential that validates a candidate's proficiency in using Microsoft Office tools such as Word, Excel, PowerPoint, and Outlook. The certification

	can help students demonstrate their skills and knowledge to potential employers and improve their chances of obtaining employment or advancing in their careers.
31. Are there apprenticeship opportunities available through this program? If so, please elaborate. (3.10)	The Business Program offers an apprenticeship opportunity with The Hartford, a leading property and casualty insurance company. This apprenticeship program is designed to provide students with hands-on experience in the field of insurance while they earn a degree. The program allows students to gain practical experience and develop industry-specific skills, while also earning nationally recognized insurance credentials. Through this apprenticeship, students can work for The Hartford while attending classes at the college. The program covers the cost of tuition, fees, and books, and provides students with a competitive salary and benefits package. In addition to working at The Hartford, students are also required to attend classes and complete coursework related to the field of insurance. The apprenticeship opportunity with The Hartford provides students with a unique opportunity to gain valuable experience in the field of insurance, while also earning a degree and nationally recognized credentials. This can help students to be more competitive in the job market and improve their chances of obtaining employment in the insurance industry.
32. If applicable, please list the licensure examination pass rate. (3.11)	A licensure examination is not required in the Business Program.
33. What current articulation or cooperative agreements/initiatives are in place for this program? (3.12)	There are several articulation agreements for the Business Program: • Arizona State University offers Guaranteed general admission to ASU and admission into major of choice if all requirements are satisfied. (Some majors have additional or higher admission requirements. General university admission is guaranteed upon successful completion of an associate degree from Waubonsee with a minimum 2.50 cumulative GPA. • Columbia College-Missouri accepts Waubonsee's AA, AS, and AES as satisfying all their general education requirements. CC-M offers bachelor's degrees at their campus location at Elgin Community College, as well as online. Degrees are offered in business administration, criminal justice administration, interdisciplinary studies, and psychology. • DeVry University accepts all AAS degrees, regardless of technical or applied content, as a block of credit into DeVry's Bachelor of Science in Technical Management (BSTM) Program. The degree is offered entirely online. • Sports Management students completing the Associate in Arts in Business at Waubonsee will be accepted into

	the Bachelor of Science in the Sports Management Program at NIU, provided they meet the requirements stated in the transfer guide. • Southern Illinois University Edwardsville has a Business Administration Pathway Program which is for students to be able to obtain a bachelor's degree by attending Waubonsee and then attending SIUE. Upon completion of the curricula requirements agreed upon by both parties, students will qualify for an Associate of Science Degree from Waubonsee and a Bachelor of Science Degree in Business Administration with the appropriate specialization from SIUE. • Saluki Step Ahead Online Program allows students to apply to SIU up to two years in advance into one of their eligible online degree completion programs. These programs include Accounting, Business & Administration, Criminology & Criminal Justice, Health Care Management, Psychology, and Radiologic Sciences. Admitted Saluki Step Ahead students would receive an 8-semester pathway, outlining the courses needed to complete these programs (these guides are created by a collaboration of SIU and the community college after opting in). Upon transferring to SIU, students receive a $4,000 per year scholarship ($8,000 total savings) towards their online tuition and fees.
34. Have partnerships been formed since the last review that may increase the quality of the program and its courses? If so, with whom? What opportunities exist for other partnerships? (3.13)	The business faculty have partnered with other Waubonsee CTE program advisory committees to make connections with business leaders across the district from a variety of industries to provide more opportunities for students. Additional business partnerships have been created through the partnership with VALEES. The business faculty and the executive dean are collaborating to establish a database of businesses that provide internships and job opportunities, as well as those interested in serving as guest speakers. This initiative aims to provide our students with private sector experience, networking opportunities, and insights from industry professionals.
35. What partnerships (internal or external) have been formed for the advancement of equitable access and outcomes for this program? (3.14)	One partnership that has been formed for the advancement of equitable access and outcomes for the Business Program is with the Waubonsee Community College Foundation. The partnership was established to create the Business Program Scholarship, which is designed to provide improved access to the program for students who may face financial barriers. This scholarship is awarded to students who are enrolled in the Business Program and demonstrate a financial need. The funds can be used to cover the cost of tuition, fees, and books, as well as other educational expenses. The scholarship is renewable for up

	to two years, provided that the student continues to meet the eligibility criteria. This partnership with the Waubonsee Community College Foundation helps to advance equitable access and outcomes for the Business Program by providing financial assistance to students who may not otherwise have the resources to pursue their education. This can help to improve retention and graduation rates, as well as provide opportunities for students to achieve their academic and career goals.
36. What professional development or training is offered to adjunct and full-time faculty that may increase the quality of this program? What additional professional development is needed? (3.15)	The college offers in-person and online professional development available through the Office of Faculty Development and Engagement. There are also budget dollars assigned for additional trainings and conferences. In addition, Faculty are encouraged to join the Illinois Business Education Association and the National Business Education Association. Both organizations have annual conferences and provide relevant training. The Business faculty are actively engaged in professional development outside of the institution.
37. What professional development is provided for faculty and staff in this program on Diversity, Equity, and Inclusion? (3.16)	The Office of Faculty Development and Engagement at Waubonsee has made training opportunities available through Faculty Development Days. In addition, Diversity, Equity, and Inclusion training is available to faculty from the Association of Colleges and University Educators (ACUE). DEI professional development is offered for all Waubonsee employees.
38. What is the status of the current technology and equipment used for this program? (3.17)	The technology and equipment used in the Business Program is current.
39. What assessment methods are used to ensure student success? (3.18)	The program uses case studies, tests/quizzes, projects, and presentations.
40. How are these results utilized and shared with others at the institution for continuous improvement? (3.19)	Results are used to confirm students are meeting individual course learning outcomes. Results are shared annually on Learning Improvement Reports that are reviewed by faculty on the Colleges Outcomes Advisory Council.
41. What curriculum revisions to improve program quality and learning outcomes have been made based on the assessment of student learning? (3.20)	Each year, faculty meet to discuss outcomes assessment results to identify areas for improvement. Most improvement focus has been in individual areas of teaching specific to individual faculty members. Past recommendations have not included curriculum revisions.
42. How satisfied are students with their preparation for employment?	Students responded to the following employment related questions on the 2022 Annual Graduating Student Survey:

	My major course content was current with practice/procedure in my field (112 responses): Not at all 3.6% Very little 8.9% Some 35.7% Quite a Bit 51.8% **I am satisfied with the job information I received in my major program at Waubonsee (103 total responses):** Not at all 7.8% Very little 15.5% Some 29.1% Quite a Bit 47.6% **Rate your satisfaction with the Career Development Services (40 responses):** Dissatisfied 5.0% Neutral 20.0% Satisfied 35.0% Very Satisfied 40.0% The Institutional Effectiveness team is adding a question specific to preparation for employment to the 2023 Annual Graduating Student Survey.
43. How is this student satisfaction information collected? (3.21)	The college administers two institutional level surveys to measure student satisfaction across all programs and disciplines. These surveys are Ruffalo Noel Levitz (RNL) Student Satisfaction Inventory (SSI) and the Community College Survey of Student Engagement (CCSSE), a service of the Center for Community College Engagement at the University of Texas at Austin.
44. How does the program advisory committee contribute to the quality of the program? How can this engagement be improved? (3.22)	The Business Advisory Committee meets twice per year to review the curriculum and ensure that employability knowledge, skills, and behaviors are included in the curriculum. In addition, the committee reviews current employment needs within the workforce. Internship and work-based learning opportunities are also identified. The committee also supports an evaluation of existing equipment and makes recommendations for improvement. Frequent communication and review with the Business Advisory contributes to the quality of the program. Reviews and evaluations drive program development to ensure we are meeting the needs of changing industries. Business Advisory engagement can be improved by continuing to build relationships with business leaders in Waubonsee's district and through participation in chambers of commerce and networking events.

45. In what other ways are employers engaged in this program? (e.g., curriculum design, review, placement, work-based learning opportunities) (3.23)	Employers are engaged in this program through Internships. Site supervisors are in contact with internship faculty through ongoing conversations on how to improve the program.
46. How satisfied are employers in the preparation of the program's graduates? How is employer satisfaction information collected? (3.24)	Although there is no formal process to collect employer satisfaction information, businesses in the district that hire our students regularly reach out to faculty members to attract additional talent for their firms and initiatives.
47. Did the review of program quality result in any actions or modifications? Please explain. (3.27)	The review of program quality resulted in the need to increase employer engagement to become a Program of Study as defined by Perkins V.

List any additional barriers encountered while implementing the program not detailed above. Please consider the following: retention, placement, support services, course sequencing, etc.
There are no barriers currently.

Performance and Equity

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. Each year may represent a cohort.

CTE Program	Business Administration				
CIP Code	52.0201				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	324	354	308	257	244
Number of Completers	29	33	20	32	21
Other (Please identify)					

<table>
<tr><td>48. What disaggregated data was reviewed?
If program enrollment is low, programs may disaggregate data at the department or discipline level. Disaggregated may include, but is not limited to race, ethnicity, gender, age, part-time/full-time status.

It may also be appropriate to analyze intersectionality among student demographics (e.g., gender & race, special population status & race, etc.)</td><td>The disaggregated data reviewed included enrollments, withdrawals, success rates, and grade distributions based on race, age, and gender.

Additional data reviewed were course enrollments, credit hours earned, success rates, withdrawal rates, and grade distributions for each course taught in the program.</td></tr>
<tr><td>49. How does the data support the program enrollment, completion, persistence, and success goals? Elaborate.</td><td>We look to maintain our student success rates in course completion that were analyzed during the last program review. The data provided shows that over the past five years, the success rate was 77%. Over the next five years, the faculty would like to see a success rate of 80% across the Business Program.

Retention has fluctuated over the past five years. In FY2022, the success rate for the business degree was 77%. Over the next five years, faculty would like to see retention increase to 80%.

The disaggregated data provided and analyzed supports student success goals. Faculty were able to draw conclusions on the current success of students as well as set future success goals.</td></tr>
<tr><td>50. Were there gaps in the data? Please explain.</td><td>The data reveal a gap in the success rate in the Business Program. White and Asian students are more successful than Black and Latinx students.</td></tr>
<tr><td>51. What suggestions do you have to overcome any identified gaps?</td><td>To close the success rate gap in the Business Program, faculty reach out to individual students and connect with them, especially African American male students. Faculty offer help, motivate, and encourage them to help the students stay on track and complete their degree.</td></tr>
<tr><td>52. Are the students served in this program representative of the total student population? Please explain.</td><td>The students enrolled in this program are representative of the total student population in terms of race, age, and gender.

Business Ethnicity:<table><tr><td>Asian</td><td>Black</td><td>Latinx</td><td>White</td></tr><tr><td>3%</td><td>13%</td><td>34%</td><td>48%</td></tr></table></td></tr>
</table>

Business Gender:

Female	Male
53%	47%

Business Age:

0-17	18-21	22-25	26-35	36-45	46-55	56-99
1%	56%	10%	20%	10%	4%	1%

Waubonsee Ethnicity:

Asian	Black	Latinx	White
5%	9%	32%	54%

Waubonsee Gender:

Female	Male
59%	41%

Waubonsee Age:

0-17	18-21	22-25	26-35	46-55	56-99
2%	59%	16%	13%	3%	1%

53. Are the students served in this program representative of the district population? Please explain.	The students served in this program are representative of the district population except for ethnicity. The Black population in the Business Program is higher than the Black population in the district. **District:** 57% White 30% Hispanic or Latino 7% Black or African American **Business Program:** 48% White 34% Hispanic or Latino 13% Black or African American

Goal Planning

54. What are the discipline's strengths? (3.25)	One of the key strengths of this program is the abundance of job openings and opportunities for advancement in business careers. As for our specific program at Waubonsee, we are fortunate to have recently hired two new full-time tenure-track faculty members who have extensive experience in business, teaching, and collaborating with the community.

55. What are the identified or potential weaknesses of the discipline? (3.26)	The program has successfully created several internal partnerships. One potential weakness of the discipline includes creating external partnerships with industry in the district.
56. Describe actions that can be implemented to turn potential weaknesses into strengths.	Waubonsee and the business faculty could explore options for additional outreach to businesses in the district. Additional external partnerships could provide our students with additional internship opportunities. They could also inform our programs through the Program Advisory Committee.
Program Goals 57. List the program goals identified in the last Annual Update. If completed, list three new measurable goals to work on for the next 5 years that address needs identified in this review and that align with the Educational Affairs Plan	**New Goals:** **Goal 1:** Explore opportunities to enhance the Business Program offerings such as adding a Digital Marketing certificate. **Goal 2:** Review and possibly revise course learning outcomes. **Goal 3:** Review and possibly revise program learning outcomes. **Goal 4:** Explore opportunities to increase employer engagement and partner with industry in the district.
58. Indicate progress made on last year's measurable program goals aligned with the educational affairs plan.	**Goal 1:** Hire a replacement for Dr. Ware, preferably someone with a background in marketing and management. **Progress:** Dr. Ware's replacement was hired and began teaching in the fall 2022 semester. **Goal 2:** If allowed, attend advisory committee meetings for other BUS-related fields (auto, HVAC, etc.) to see what we can do to help those students and employers. **Progress:** BUS faculty attended advisory meetings in other BUS-related programs. **Goal 3:** Explore possibilities for student transfer agreements with four-year institutions. **Progress:** Faculty served on a university transfer task force that was working to establish goals and criteria for creating university partnerships and transfer opportunities. As of the writing of this report, the outcome of the task force was unknown.
Resources and Support 59. List and describe resources and support needed to implement the goals listed above and other needs to sustain improvements to your	Resources needed to meet the goals stated above is in collaboration with the Outcomes Assessment Coordinator to revise program and course learning outcomes. Support from the college administration team as the Digital Marketing certificate is rolled out.

program. (Example: Tutoring, software, professional development)	
Review Results	
Action	☒Continued with Minor Improvements ☐Significantly Modified ☐Placed on Inactive Status ☐Discontinued/Eliminated ☐Other (please specify)
Summary Rationale 60. Please provide a brief rationale for the chosen action.	The program is operating successfully, and only minor improvements are needed. We will carefully assess the program each year and make changes, as necessary.
Intended Action Steps 61. What are the action steps resulting from this review? Please detail a timeline and/or dates for each step.	1. Explore opportunities to enhance the Business Program offerings such as Digital Marketing. • Timeline: Fall 2024 2. Review and possibly revise course learning outcomes. • Timeline: Ongoing, changes made as necessary 3. Review and possibly revise program learning outcomes. • Timeline: Ongoing, changes made as necessary 4. Explore opportunities to increase employer engagement. • Timeline: Fall 2023 5. Explore opportunities to partner with industry in the district. • Timeline: Spring 2024
Performance and Equity 62. To what extent are action steps being implemented to address equity gaps, including racial equity gaps?	Waubonsee Community College is implementing five strategies specifically to improve persistence and to close the gap on completion rates. After a thorough review of institutional data, Illinois Equity in Attainment Initiative (ILEA) core team member discussions, and input from college faculty, staff, and students, these five strategies were selected: 1. Developmental Education Reform 2. Disaggregated Data Analysis 3. Diverse Hiring Plan 4. Latinx Student Engagement 5. African American Student Engagement

Responsibility 63. Who is responsible for completing or implementing the modifications?	It is the responsibility of the full-time faculty with the support of administration.

Career & Technical Education

College Name:	Waubonsee Community College
Academic Years Reviewed:	FY2018-FY2022

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
Computer Aided Design and Drafting	A.A.S	60 credit hours	15.1302	• Computer Aided Design and Drafting (16 credit hours) • Computer Aided Design and Drafting-Mechanical (23 credit hours) • Computer Aided Design and Drafting-Architectural (21 hours)

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 within this template or results may be reported within its own template. This is at the discretion of the college.

Program Outcomes 1. What are the outcomes of the program? *(i.e., what are the program learning outcomes? What occupations is this program intended to prepare students for?)*	1. Prepare accurate engineering drawings showing the detail and method of assembly. 2. Solve engineering problems. 3. Design a comprehensive project using advanced engineering programs. 4. Describe the purpose of industry codes or standards. 5. Analyze product designs or product improvement ideas. 6. Prepare accurate engineering drawings showing the detail or method of assembly.
2. To what extent are these outcomes being achieved? Please detail how achievement of program outcomes is being measured or assessed. How do you know if and how outcomes are being achieved? *This may include employment rates of graduates, passing exam/licensure rates, assessment of students meeting*	The CAD Program faculty developed a five-year assessment plan, which involves conducting annual assessments to document student learning outcomes. These outcomes are achieved through a combination of classroom lectures, group discussions, demonstrations, homework assignments, and final exams. To confirm the achievement of course and program outcomes, students are assessed on all learning objectives, and the assessment results are used to identify areas of success and areas where improvements may be needed in the curriculum or instructional methods.

Program Learning Outcomes, etc.)	
Past Program Review Action 3. What action was reported last time the program was reviewed? Were these actions completed?	1. Identify industry contacts and high school instructors to serve on the committee. 2. Formalize the committee's goals and objectives. 3. Schedule meeting in the fall 2018 with a second meeting in the spring 2019 Since the last review, Oswego and West Aurora High Schools have joined the advisory committee. The committee now holds regular meetings during the fall and spring semesters, and its goals and objectives have been established and documented.
Review Team 4. Please identify the names and titles of faculty and staff who were major participants in the review of this program. Also describe their role or engagement in this process.	Randall Hines, Associate Professor
Stakeholder Engagement 5. Please list other stakeholders and participants who were engaged in this process (i.e., Student Support Services, students, employers, etc.) Also describe their role or engagement in this process.	Biannual program advisory meetings play an integral role in the review of CTE programs at Waubonsee. Stakeholders include students, alumni, employers, WIOA partners, and university partners. All stakeholders share input at advisory meetings which informs the curriculum development process and program review. In addition, Waubonsee's Institutional Effectiveness Office is engaged in the program review process by providing program data.

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.

6. Were pre-requisites for this program (courses, placement scores, etc.) analyzed as part of this review? If yes, please elaborate on any findings or revisions moving forward.	There are no prerequisites for entry into the CAD Program. Course prerequisites were analyzed and resulted in the recommendation for CAD 122, Geometric Dimensioning and Tolerancing, to be a corequisite for CAD 240, Introduction to Parametric Modeling Using SolidWorks and CAD 241, Introduction to Parametric Modeling Using Inventor.
7. Provide a rationale for content/credit hours beyond 30 hours for a certificate or 60 hours for a degree.	The degree program requires no more than 60 credit hours, while the certificate program requires no more than 30 credit hours.

Indicator 1: Need	Response
8. What is the labor market demand for the program? Cite local and regional labor market information. (1.1)	According to Lightcast, in 2022, regional employment is lower than the national average. Waubonsee's region includes 12 counties and has 5,203 positions. In the State of Illinois there are 7,005 positions. The national average adjusted for region size is 6,697 positions.
9. How has demand changed in the past five years and what is the outlook for the next five years? (1.2)	Demand over the past five years has decreased 20% in Waubonsee's region, 20% in the State of Illinois, and 9.5% nationally. Over the next five years, demand is expected to decrease 3.6% in region, 0.7% in the State of Illinois, and 3.3% nationally. It is important to note that students in the CAD Program are being hired at the end of their first year of the program. In 2022, 100% of the students who completed their first year all obtained full-time employment. Additionally, the infrastructure bill at the state and federal level is expected to bring in billions of dollars for improvements to roads, bridges, rails, ports, telecommunications, and aeronautics. A portion of the 90,000 new jobs that will become available will include drafters and engineers which we are preparing in the CAD Program. https://idot.illinois.gov/transportation-system/rebuild-illinois.html
10. Does your enrollment have the capacity to meet the readiness of business and industry?	Yes, the enrollment in our program has the capacity to meet the readiness of business and industry. Our program is designed to equip students with the skills and knowledge needed to succeed in the workforce, and we have a track record of success in placing our graduates in industry positions. For example, during the spring 2022 semester, all first-year students in our program were placed in full-time drafting positions, demonstrating the strong demand for our graduates in the industry. By maintaining close relationships with local businesses and regularly assessing our program offerings to meet their needs, we can ensure that our graduates are adequately prepared to meet the demands of the job market.
11. What labor market information sources are utilized and how often are LMI data reviewed? (1.3)	To inform our program offerings and ensure our students are prepared for the job market, the college relies on labor market information from reputable sources including Lightcast, the Bureau of Labor Statistics (BLS), and the Illinois Department of Employment Security. Our faculty members receive updates on labor market information on an annual basis and can request additional information as needed to inform their teaching and curriculum development. This allows us to remain up to date with industry trends and prepare our students for successful careers after graduation.

12. How does the institution/ program ensure that there is a sufficient "pipeline" or enrollment of students to fulfill the labor market need? (e.g., how/where are students recruited for this program?) (1.4)	To ensure that there is sufficient student enrollment, students are recruited at local high schools and affiliated vocational centers through individual visits and college fairs. In addition, Waubonsee also reaches out to community organizations and local businesses to share information about certificate and degree programs. Dual credit for high schools is offered for core courses in the program and ensures there is a sufficient pipeline to fulfill labor market needs. The Valley Education for Employment System (VALEES) helps with connecting high school students and college faculty by hosting events and showcasing the college program offerings. The Career and Technical Education Services Manager provides resources and support to help CTE students overcome barriers to their education. The college also hosts the annual regional Illinois Design Educators Association (IDEA) Region 6 Drafting and Design Competition. On average this event brings about one hundred high school students to the campus. Counselors and admissions advisors have an opportunity to speak with students about their educational goals. This often leads to enrollment at Waubonsee.
13. How are needs/changes evaluated by the curriculum review committee and campus academic leadership? (1.5)	Several processes are in place to review and evaluate changes to the curriculum: • Faculty participate in state and national organizations, as well as industry advisory committees, to confirm industry needs and potential changes. • Faculty collaborate with deans regarding curricular changes. • All changes proposed by faculty are reviewed by Waubonsee's Curriculum Council. The Council is comprised of program faculty, academic deans, and other staff directly involved in curriculum. The Council is chaired by the Vice President of Educational Affairs. • A checklist is in place and completed prior to Curriculum Council to allow for discussions about the proposed changes.
14. Did the review of program need result in actions or modifications (e.g., closing the program, expanded industry partnerships, revised recruitment, reducing/expanding program offerings)? Please explain. (1.6)	The review of program need did not result in any actions or modifications. The needs of students have adjusted in that they are only seeking short-term certificates to gain immediate employment. As a result, EGR 101 is being replaced with CAD 100 and CAD 118.

<table>
<tr><th>Indicator 2:
Cost Effectiveness (see ICCB and system resources for cost-effectiveness: https://www.iccb.org/academic_affairs/program-review/)</th><th>Response</th></tr>
<tr><td>15. How does the institution assess cost-effectiveness for CTE programming? Consider:
Costs to the institution associated with this program
How costs compare to other similar programs on campus
How the college is paying for this program and its costs (e.g., grants, tuition, fees (lab, technology, background checks, etc.).
Revenue Analysis
Student to faculty ratio
Course/section fill rates
Enrollment trends
Credit hours earned year to year
Scheduling efficiency
(2.1)</td><td>The institution assesses cost-effectiveness for CTE programming by the direct costs associated with the program. These costs include:
Faculty salary and benefits (full-time and part-time)
Instructional supplies
Technology, software, and services
Publications and dues
Full-time faculty professional development
The CAD prefix cost per load hour is 21% higher than the average of all CTE programs at Waubonsee. The prefix cost per load hour is $4,179.95. The average cost per load hour is $3,368.67.</td></tr>
<tr><td>16. What are the findings of the cost-effectiveness analysis? (2.2)</td><td>Due to the build-out of the Plano Campus to add a CAD lab and prototyping lab, the cost is higher than the previous program review. The cost will normalize over the next couple of years. Once the new CTE building is built and existing building is renovated to upgrade the CAD Program, we anticipate seeing another rise in program cost.</td></tr>
<tr><td>17. 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. (2.3)</td><td>The CAD Program is largely funded by the general education fund and utilizes Perkins grant funds where appropriate.</td></tr>
<tr><td>18. How does the institution/program assess student affordability for this program? (Consider if program costs are reasonable, comparable to like programs.) (2.5)</td><td>The program assesses student affordability by comparing program costs to like programs. According to IPEDS, in 2021, Waubonsee’s CAD Program tuition and fees were lower than other community colleges in the region with a CAD Program except for Elgin and Moraine Valley (see chart below).<table><tr><td>College</td><td>IPEDS Tuition & Fees (2021)</td></tr><tr><td>College of DuPage</td><td>$9,750</td></tr></table></td></tr>
</table>

	Elgin Community College	$7,140
	Joliet Junior College	$12,570
	McHenry College	$11,608
	Morton College	$9,476
	Waubonsee	**$9,271**
	Moraine Valley	$8,118
19. How does the institution/ program assist students in overcoming financial barriers to participate in this program? (e.g., WIOA, Ability-to-Benefit, scholarships, grant funding, referral to services, apprenticeship programming)	The institution/program offers various forms of financial assistance to help students overcome financial barriers to participate in the program. Students can explore their eligibility for financial aid, technology loans, the Perkins Support Program, the Emergency Needs Program, and Waubonsee Foundation Grants. These programs provide financial support to students who are experiencing financial hardship and need assistance to continue their education. In addition, the institution/program may refer students to WIOA partners for other available supports such as job training, education, and employment services. This can help students gain access to additional resources and support to help them achieve their educational and career goals. Apprenticeship programs are available for some CTE programs. These programs provide students with hands-on training and experience in their field of study, while also earning an income to help cover their education costs. This can be an excellent opportunity for students to gain practical skills and experience while also receiving financial assistance to support their education.	
20. How will the college increase the cost- effectiveness of this program?	While it is true that the CAD Program has a relatively low cost compared to other programs in the region, there are still ways that the college can increase the cost-effectiveness of the program. For example, the college could explore opportunities to leverage technology to reduce costs associated with materials, textbooks, and equipment. The college can develop partnerships with industry partners to provide internship or co-op opportunities to students, which can offset some costs for students and provide valuable hands-on training. By continuously evaluating and improving the program's cost-effectiveness, the college can ensure that the CAD Program remains accessible and valuable for students while also achieving financial sustainability.	
21. Did the review of program cost result in any actions or modifications? Please explain. (2.6)	The review of program cost did not result in any actions or modifications.	
Indicator 3: Quality	**Response**	

<table>
<tr>
<td>22. What are the delivery methods of this program? (e.g., traditional format/online/hybrid/team-teaching/ competency-based education, etc.)?

How do the success rates of each delivery system compare? (3.1)</td>
<td>The delivery methods for the CAD Program are:

Face-to-Face: Classes meet in a traditional classroom setting on one of Waubonsee’s four campuses.

Flex: All class sessions meet in-person in a Flex-equipped classroom and are simultaneously live-streamed and recorded through Zoom. After each class, the Zoom recording is posted in Canvas so that students may view or review each session.

Hybrid: Hybrid classes are a combination of instruction and student participation occurring in-person in a traditional classroom on one of Waubonsee's four campuses and occurs asynchronously and/or synchronously online.

Online: Online courses are delivered asynchronously. Students learn 100% online through Canvas.

Sync Online: Sync Online courses are a combination of course instruction and student participation occurring synchronously online through Zoom on the scheduled days and times for the course.

The success rates of each modality at Waubonsee over the past five years are listed in the table below:

<table>
<tr><th>Success Rate by Modality</th><th>Traditional /F2F</th><th>Online</th><th>Hybrid</th><th>Flex</th><th>Sync Online</th><th>Total</th></tr>
<tr><td>FY18</td><td>59%</td><td>51%</td><td>76%</td><td></td><td></td><td>57%</td></tr>
<tr><td>FY19</td><td>62%</td><td>57%</td><td>59%</td><td></td><td></td><td>61%</td></tr>
<tr><td>FY20</td><td>78%</td><td>74%</td><td>75%</td><td></td><td></td><td>76%</td></tr>
<tr><td>FY21</td><td>83%</td><td>73%</td><td>76%</td><td>72%</td><td>76%</td><td>76%</td></tr>
<tr><td>FY22</td><td>78%</td><td>73%</td><td>70%</td><td>68%</td><td>73%</td><td>73%</td></tr>
</table>
</td>
</tr>
<tr>
<td>23. How does the program ensure that instruction is quality, relevant, contextualized, and culturally responsive? (3.2)</td>
<td>Instructors stay abreast with latest developments in their field of study and modify curriculum accordingly.

Additionally, the bi-yearly advisory meetings with industry partners also help to ensure instruction is relevant.

Faculty also participate in various industry specific events such as SkillsUSA and the IDEA contest hosted at the college.</td>
</tr>
<tr>
<td>24. Is this program part of a Program of Study as defined by Perkins V and approved by the ICCB?

If yes, describe any strengths or challenge to program of study implementation. (3.3)</td>
<td>The CAD Program is part of the Program of Study as defined by Perkins V and approved by ICCB, providing a structured pathway for students to achieve their career goals. The program offers multiple credentials and work-based learning opportunities, such as internships and the IDEA competition which help students to develop the necessary skills and knowledge required in the industry. Collaboration with industry partners ensures that the program stays relevant, but challenges may arise in ensuring equal access to work-based learning opportunities and aligning these</td>
</tr>
</table>

	experiences with program needs and expectations. Overall, the Program of Study model provides a valuable framework for the CAD Program to provide high-quality education and prepare students for success in the workforce.

25. Does this program meet the definition of a career pathway program? If so, please describe each career pathway element and identify how the college plans to improve the program as it relates to the career pathway system elements. (Examples include connections to adult education including integrated education and training, prior learning assessment, dual credit, support services, career services). If no, please describe if and how the college will improve the program based on the career pathway elements. (3.4)	The CAD Program does meet the definition of a career pathway program.
	
	The program aligns with the skill needs of industries in the economy of the state or regional economy involved:
	In the CAD Program students can pursue the following postsecondary credentials:
	• Computer Aided Design and Drafting -- AAS
	• Computer Aided Design and Drafting -- Certificate of Achievement
	• Computer Aided Design and Drafting-Architectural -- Certificate of Achievement
	• Computer Aided Design and Drafting-Mechanical -- Certificate of Achievement
	
	Full-time and adjunct faculty provide their experience as former/current professionals within the industry. Students work individually or on teams to complete course projects and exams with real-world applicability to the CAD industry. Students utilize industry standard equipment in the labs and software including Autodesk (AutoCAD, Inventor, Revit) and SolidWorks. Students with Autodesk and SolidWorks certifications can apply for credit for prior learning. Employer engagement occurs through advisory meetings and collaborations through internship placement.
	
	The program prepares an individual to be successful in any of a full range of secondary and post-secondary education options:
	Dual credit, credit for prior learning, and transfer agreements to four-year institutions are available within the CAD instructional sequence.
	
	The following dual credit agreements are in place for courses required for the CAD certificates and AAS:
	• CAD100—Technical Drawing I
	  ○ West Aurora HS
	  ○ Plano HS
	  ○ Yorkville HS
	• CAD102—AutoCAD I
	  ○ Plano HS
	  ○ West Aurora HS
	  ○ Yorkville HS
	• CAD118—Technical Drawing II
	  ○ West Aurora HS
	• CIS110—Business Information Systems
	  ○ East Aurora HS

	o Yorkville HS • EGR101—Engineering Graphics o Marmion Academy • AMT100—Intro to Manufacturing Automation Systems o Batavia HS • MTT100/115 o Batavia HS • CMT101—The Construction Industry o Indian Valley Vocational Center • CMT105—Print Reading for Construction o Indian Valley Vocational Center Dual credit agreements are also in place for general education courses required for the AAS. Credit for prior learning may be awarded for those with certain industry recognized credentials. In addition, transfer agreements have been developed for CAD students who want to pursue a bachelor's degree through SIU. Additional collaboration with secondary partners occurs through CTE program committee meetings and career exploration events organized through the Education for Employment (EFE). **The program includes counseling to support an individual in achieving the individual's educational goals:** All students are assigned to an Academic and Career Advisor who will, utilizing a case management model, guide/support them through completion of the program. For FY22, an Academic Coach will be assigned to support students in the Business, Technology, and Workforce Education Division, including the CAD Program. Equity reports providing disaggregated data for enrollment, completion, and success metrics by factors of race, gender and age are available for all CTE program faculty and administrators. This information will be utilized to identify potential equity gaps and develop strategies to address these gaps. **The program includes, as appropriate, education offered concurrently with and in the same context as workforce preparation activities:** Students in the CAD Program can participate in team-based challenges and work-based learning. The CAD faculty member coordinates the annual regional competition for the IDEA for district high schools. Postsecondary students, often former high school participants, participate in this event in a leadership role, acting as proctors and judges for this competition, among other forms of assistance. Additionally, CAD students may participate in SkillsUSA. Students identify internship opportunities with the assistance of

	the CAD faculty or through resources on the Waubonsee webpage. **The program organizes education, training, and other services to meet needs of an individual manner that accelerates the educational and career advancements of the individual to the extent practicable:** Dual credit agreements are also in place for general education courses required for the AAS. Credit for prior learning may be awarded for those with certain industry recognized credentials. In addition, transfer agreements have been developed for CAD students who want to pursue a bachelor's degree through SIU. Additional collaboration with secondary partners occurs through CTE program committee meetings and career exploration events organized through the Education for Employment (EFE). **The program enables an individual to attain a secondary school diploma or its recognized equivalent, and at least one recognized post-secondary credential:** Through the dual credit offerings students can earn the CAD certificate while in high school. Once the student enrolls in Waubonsee they can earn the full AAS degree along with other certificates. Below is a list of available credentials for the Computer Aided Design and Drafting program: • Computer Aided Design and Drafting -- Certificate of Achievement • Computer Aided Design and Drafting-Architectural -- Certificate of Achievement • Computer Aided Design and Drafting-Mechanical -- Certificate of Achievement **The program helps an individual enter or advance within a specific occupation or occupational cluster:** Students in the CAD Program are prepared for entry level roles such as civil and mechanical drafters. Students also have an opportunity to become certified in the common industry software that is used in field.
26. What innovations, that contribute to quality or academic success, have been implemented within this program that other colleges would want to learn about? (3.5)	The addition of the new CAD lab and prototyping room in fall 2020 at Waubonsee Community College is a significant asset for students pursuing degrees in engineering and related fields. The CAD lab is equipped with the latest computer and software technology, allowing students to gain experience with industry-standard tools and practices. The prototyping room is outfitted with cutting-edge equipment, providing students with hands-on experience in the design and production of prototypes.

27. Describe dual credit implementation for this program (how many students, courses, participating high schools). What are the priority dual credit courses that are offered to high school students? (3.6)	**CAD 100 - Technical Drawing I (217 Students)** • West Aurora High School **CAD 102 - AutoCAD I (96 students)** • Plano HS • West Aurora HS • Yorkville HS **CAD 118-Technical Drawing II (32 Students)** • West Aurora HS **CAD 120-AutoCAD II (20 Students)** • West Aurora HS
28. Identify what work-based learning opportunities are available and integrated into the curriculum. How do these opportunities improve the quality of the program? In what ways can these opportunities be improved? (3.7)	While there are no work-based opportunities integrated into the curriculum, all courses integrate project-based learning using industry work examples. These examples are pulled from our industry partners or from conferences and trade shows. Students in the CAD Program can participate in team-based challenges and work-based learning. The CAD faculty member coordinates the annual regional competition for the IDEA for district high schools. Postsecondary students, often former high school participants, participate in this event in a leadership role, acting as proctors and judges for this competition, among other forms of assistance. Additionally, CAD students may participate in SkillsUSA. Students identify internship opportunities with the assistance of the CAD faculty or through resources on the Waubonsee webpage. Additionally, students can identify apprenticeship opportunities on the website or with assistance from the Workforce Education Manager. Work-based learning opportunities allow students to make real-world connections between what they learn in the classroom and what is used in industry. It also allows them to network and make human connections that can be helpful in gaining meaningful employment in their industry of choice.
29. 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, ASE). (3.8)	Industry accreditation is not required for the CAD Program.
30. Are there industry-recognized credentials embedded within this program? If so, please list. (3.9)	Students in the CAD Program are prepared to sit for the SolidWorks certification.
31. Are there apprenticeship opportunities available through this program? If so, please elaborate. (3.10)	Apprenticeship opportunities are available for students who want to explore a specific career pathway.

32. If applicable, please list the licensure examination pass rate. (3.11)	Licensure exams are not applicable to the CAD Program.
33. What current articulation or cooperative agreements/initiatives are in place for this program? (3.12)	Waubonsee has an agreement with Northern Illinois University called the Guaranteed Admissions Program. The goal of the Guaranteed Admission Program (GAP) is to create a seamless and transparent admission process for transfer students intending to complete their baccalaureate degree at Northern Illinois University. The Guaranteed Admission Program allows students the opportunity to be simultaneously admitted to both Northern Illinois University and Waubonsee. As part of the Guaranteed Admission Program, students are eligible to transfer into more than sixty (60) undergraduate degree programs at Northern Illinois University. Eastern Illinois University offers the Panther Pledge. The Panther Pledge offers community college students guaranteed admission to Eastern Illinois University to complete their bachelor's degree. Illinois State University-Redbird Promise offers Illinois community college students guaranteed admission to Illinois State University to complete their bachelor's degree. Students must meet all the requirements outlined to guarantee their admission to Illinois State University.
34. Have partnerships been formed since the last review that may increase the quality of the program and its courses? If so, with whom? What opportunities exist for other partnerships? (3.13)	The most recent partnership for the CAD Program is with Southern Illinois University. The partnership will give students the opportunity to transfer their AAS degree into a baccalaureate program at Southern Illinois University.
35. What partnerships (internal or external) have been formed for the advancement of equitable access and outcomes for this program? (3.14)	In addition to the partnership with VM Ware that provides equitable access to software, there are other partnerships that have been formed for the advancement of equitable access and outcomes for the CAD Program. The CAD Program has partnerships with local employers and industry associations. These partnerships help to ensure that the program remains relevant and that students have access to work-based learning opportunities, such as internships, co-op programs, and apprenticeships. These opportunities not only provide students with valuable hands-on experience but also increase their chances of securing employment after graduation.
36. What professional development or training is offered to adjunct and full-time faculty that may increase the quality of this program? What additional professional development is needed? (3.15)	The college offers in-person and online professional development through the Office of Faculty Development and Engagement (FDAE). There are also budget dollars assigned for additional program trainings and conferences. Additionally, faculty in the CAD Program attend the Autodesk University conference to gain industry knowledge.

	Additional training in mental health would be a great topic for future professional development.
37. What professional development is provided for faculty and staff in this program on Diversity, Equity, and Inclusion? (3.16)	The Office of FDAE at Waubonsee has made training opportunities available through Faculty Development Days. Diversity, Equity, and Inclusion training is also available to faculty from the Association of Colleges and University Educators (ACUE) and DEI professional development is offered to all employees of the college.
38. What is the status of the current technology and equipment used for this program? (3.17)	The Plano lab has been in operation for two years, and its equipment and facilities are well-maintained. The Sugar Grove lab has been operational for eight years and will undergo upgrades as part of the master planning and construction associated with the Career and Technical Education (CTE) building.
39. What assessment methods are used to ensure student success? (3.18)	The program uses final exams with a standardized rubric by class to evaluate the achievement of the course outcomes. These final exams are engineering drawings that are course-specific.
40. How are these results utilized and shared with others at the institution for continuous improvement? (3.19)	Results are used to confirm students are meeting individual course learning outcomes. Results are shared annually on Learning Improvement Reports that are reviewed by faculty on the Colleges Outcomes Advisory Council.
41. What curriculum revisions to improve program quality and learning outcomes have been made based on the assessment of student learning? (3.20)	As a result of assessment of student learning, some minor changes to prerequisites are being made.
42. How satisfied are students with their preparation for employment? (3.21)	Students responded to the following employment related questions on the 2022 Annual Graduating Student Survey: **My major course content was current with practice/procedure in my field (112 responses):** Not at all 3.6% Very little 8.9% Some 35.7% Quite a Bit 51.8% **I am satisfied with the job information I received in my major program at Waubonsee (103 total responses):** Not at all 7.8% Very little 15.5%

	Some 29.1% Quite a Bit 47.6% **Rate your satisfaction with the Career Development Services (40 responses):** Dissatisfied 5.0% Neutral 20.0% Satisfied 35.0% Very Satisfied 40.0% The Institutional Effectiveness Team is adding a question specific to preparation for employment to the 2023 Annual Graduating Student Survey.
43. How is this student satisfaction information collected?	The college conducts two surveys at the institutional level to evaluate student satisfaction across all programs and fields. These surveys are the Ruffalo Noel Levitz (RNL) Student Satisfaction Inventory (SSI) and the Community College Survey of Student Engagement (CCSSE), which is a service provided by the Center for Community College Engagement at the University of Texas at Austin.
44. How does the program advisory committee contribute to the quality of the program? How can this engagement be improved? (3.22)	The program advisory committee plays a crucial role in ensuring the quality and relevance of the CAD Program at Waubonsee Community College. Meeting twice a year, the committee reviews the program and provides feedback on at least one CAD course. This feedback is then reviewed and incorporated into the curriculum as appropriate. However, to further enhance the engagement of the program advisory committee, there are opportunities for improvement. For example, recruiting additional members to the committee could provide diverse perspectives and expertise, which could help to improve the quality of the program. Another way to improve engagement is to provide the advisory committee members a meal to encourage attendance. This incentive could help to ensure that members attend the meetings and actively participate in the discussions. Moreover, it demonstrates the college's appreciation for the committee members' time and efforts.
45. In what other ways are employers engaged in this program? (e.g., curriculum design, review, placement, work-based learning opportunities) (3.23)	In addition to providing case studies, some employers also offer guest lectures or even sponsor projects for students to work on. This provides valuable hands-on experience for students and helps bridge the gap between academic learning and real-world application. Employers may also offer internships or co-op programs, allowing students to gain practical experience in their industry and potentially even secure a job offer upon graduation.
46. How satisfied are employers in the preparation of the program's graduates?	There is no formal process in place to collect employer satisfaction information.

How is employer satisfaction information collected? (3.24)	
47. Did the review of program quality result in any actions or modifications? Please explain. (3.27)	The review of program quality did not result in any immediate actions. Faculty are exploring competency-based pathways to prepare students for quicker employment.

List any additional barriers encountered while implementing the program not detailed above. Please consider the following: retention, placement, support services, course sequencing, etc.
Barriers were not encountered while implementing the program.

Performance and Equity

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. Each year may represent a cohort.

CTE Program	Computer Aided Design and Drafting				
CIP Code	15.1302				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	63	67	61	52	58
Number of Completers	16	9	12	13	8
Other (Please identify)					

48. What disaggregated data was reviewed? If program enrollment is low, programs may disaggregate data at the department or discipline level. Disaggregated may include, but is not limited to race, ethnicity, gender, age, part-time/full-time	The reviewed disaggregated data included information on enrollments, withdrawals, success rates, and grade distribution based on demographic factors such as race, age, and gender. Additionally, detailed data was analyzed for individual courses offered within the program, including enrollment rates, credit hours earned, success rates, withdrawal rates, and grade distribution. By examining these data points, we can gain a better understanding of how the program is serving students of different backgrounds and identify areas for improvement to ensure that all students have equal opportunities for success.

status. It may also be appropriate to analyze intersectionality among student demographics (e.g., gender & race, special population status & race, etc.)	
49. How does the data support the program enrollment, completion, persistence, and success goals? Elaborate.	Currently, goals are not established at the program level. As part of our ongoing efforts to strengthen programs, the college is continuing to work on a Strategic Enrollment Management plan that will not only set goals for enrollment, completion, and retention on a broader institutional scale, but also for programs and pathways.
50. Were there gaps in the data? Please explain.	The data revealed that the CAD Program is overwhelmingly dominated by white males, which indicates a lack of diversity in the field and in the Waubonsee district. This could potentially suggest that there may be barriers or biases that prevent women and people of color from entering or advancing in this profession. It highlights the need for efforts to promote diversity and inclusion in the CAD Program and other related fields.
51. What suggestions do you have to overcome any identified gaps?	In addition to increasing exposure to CAD and engineering for middle school and high school females and students of color, there are other suggestions that can help overcome any identified gaps: Encourage mentorship: Mentorship programs can help underrepresented students in STEM fields connect with professionals in the industry, receive guidance and support, and learn about opportunities and resources that can help them succeed. Expand outreach efforts: It is important to ensure that outreach efforts are reaching all segments of the student population, including those who may be underrepresented in STEM fields. This can include partnering with community organizations, attending career fairs and other events, and utilizing social media and other digital platforms to reach a wider audience. Provide access to resources: Providing students with access to tools and resources, such as online courses, workshops, and training programs, can help them develop the skills they need to be successful in STEM fields. Address systemic issues: It is also important to address any systemic issues that may be contributing to the gaps identified, such as bias in hiring and promotion, lack of diversity in leadership positions, and limited funding for programs that serve underrepresented students. By implementing these suggestions and other strategies, it is possible to overcome gaps and ensure that all students have access to the opportunities and resources they need to succeed in STEM fields.

<table>
<tr>
<td>52. Are the students served in this program representative of the total student population? Please explain.</td>
<td>The students served in this program are representative of the total student population except for gender. This program has a smaller female population than the Waubonsee population.

Computer Aided Design and Drafting Ethnicity:
<table>
<tr><td>Asian</td><td>Black</td><td>Latinx</td><td>White</td></tr>
<tr><td>9%</td><td>8%</td><td>29%</td><td>53%</td></tr>
</table>
Computer Aided Design and Drafting Gender:
<table>
<tr><td>Female</td><td>Male</td></tr>
<tr><td>26%</td><td>74%</td></tr>
</table>
Computer Aided Design and Drafting Age:
<table>
<tr><td>0-17</td><td>18-21</td><td>22-25</td><td>26-35</td><td>36-45</td><td>46-55</td><td>56-99</td></tr>
<tr><td>0%</td><td>41%</td><td>31%</td><td>14%</td><td>14%</td><td>0%</td><td>0%</td></tr>
</table>
Waubonsee Ethnicity:
<table>
<tr><td>Asian</td><td>Black</td><td>Latinx</td><td>White</td></tr>
<tr><td>5%</td><td>9%</td><td>32%</td><td>54%</td></tr>
</table>
Waubonsee Gender:
<table>
<tr><td>Female</td><td>Male</td></tr>
<tr><td>59%</td><td>41%</td></tr>
</table>
Waubonsee Age:
<table>
<tr><td>0-17</td><td>18-21</td><td>22-25</td><td>26-35</td><td>46-55</td><td>56-99</td></tr>
<tr><td>2%</td><td>59%</td><td>16%</td><td>13%</td><td>3%</td><td>1%</td></tr>
</table>
</td>
</tr>
<tr>
<td>53. Are the students served in this program representative of the district population? Please explain.</td>
<td>Based on the demographics provided, the students served in the CAD Program appear to be generally representative of the district population, with minor differences in the percentages of different ethnic groups. The district is made up of 57% White, 30% Hispanic or Latino, and 7% Black or African American students. In contrast, the CAD Program has 53% White, 29% Hispanic or Latino, and 8% Black or African American students. While there is some variation, the overall picture suggests that the program is serving a diverse student population that is generally reflective of the district's demographics. It is important to continue monitoring and assessing the program's outreach efforts to ensure that all students have equal access to the program and are given the opportunity to succeed.</td>
</tr>
</table>

Goal Planning	
54. What are the discipline's strengths? (3.25)	1. The CAD Program can provide students with opportunities to secure full-time positions either during or after one year of college. 2. Faculty members with a combined 70+ years of industry experience can bring invaluable practical knowledge and insights into the classroom. 3. The CAD Program often incorporates industry-based projects for design problems, giving students a chance to work on real-world applications and challenges. 4. High demand: There is a high demand for professionals with CAD skills across a variety of industries, making it a potentially lucrative and stable career path.
55. What are the identified or potential weaknesses of the discipline? (3.26)	The age of equipment on the Sugar Grove Campus has been identified as a weakness.
56. Describe actions that can be implemented to turn potential weaknesses into strengths.	Renovating the current building to reflect a state-of-the-art classroom and lab will address the potential weakness.
Program Goals 57. List the program goals identified in the last Annual Update. If completed, list three new measurable goals to work on for the next 5 years that address needs identified in this review and that align with the Educational Affairs Plan	1. Develop a competency-based track for AutoCAD and assess the suitability of other courses for incorporating competency-based elements. 2. Develop a new course centered on Design and Additive Manufacturing, specifically 3D Printing. 3. Procure portable scanners to enhance the hands-on laboratory experience. 4. Plan and reconstruct the labs located at our Sugar Grove Campus.
58. Indicate progress made on last year's measurable program goals aligned with the educational affairs plan.	Unfortunately, no goals were set for the program in the previous year. However, we recognize the importance of setting goals and implementing improvements to ensure the program's ongoing success. That is why we have established a clear timeline and identified specific areas for improvement to make up for lost time and remain current with the latest developments in the field. We are committed to ensuring that the program provides students with a high-quality education that prepares them for success in the workforce. By working together and following a continuous improvement process, we can achieve this goal and ensure the program's long-term viability.

Resources and Support 59. List and describe resources and support needed to implement the goals listed above and other needs to sustain improvements to your program. (Example: Tutoring, software, professional development)	To achieve the goals outlined for the program, several critical factors will be required. These include: 1. Administration support, including financial support, to ensure that the program has the resources necessary to implement the improvements and remain current with the latest developments in the field. 2. Advisory council guidance on new equipment, as industry professionals can provide valuable insights into the latest technology and how it can be incorporated into the curriculum. 3. Training on new equipment to ensure that faculty and staff are proficient in using it, which will enhance the quality of instruction and the overall educational experience for students. 4. Training in Additive Manufacturing to prepare students for the workforce by providing them with essential skills that are in high demand in the industry. This will enable them to become proficient in this technology and compete effectively for jobs in the field. By addressing these key factors, we can ensure that the program remains relevant and effective, providing students with the knowledge and skills they need to succeed in the workforce. The commitment of administration, advisory council, faculty, and staff to this process will be essential to the program's success.
Review Results	
Action	☒Continued with Minor Improvements ☐Significantly Modified ☐Placed on Inactive Status ☐Discontinued/Eliminated ☐Other (please specify)
Summary Rationale 60. Please provide a brief rationale for the chosen action.	Based on the data collected over the past five years and following a continuous improvement process, it has been determined that the program requires minor improvements to stay current and to meet the evolving needs of our students. New goals have been set, and a timeline has been established to implement these goals starting in 2023. The aim is to enhance the program's overall effectiveness and ensure that it aligns with industry standards and best practices. This process will involve collaboration among faculty, staff, and other stakeholders to ensure that the program is relevant and valuable to our students. We are committed to maintaining a high-quality educational experience for our students, and these improvements will help us achieve that goal.
Intended Action Steps 61. What are the action steps resulting from this review? Please detail a timeline and/or dates for each step.	1. Work with administration to redesign the CAD lab at the Sugar Grove Campus. Timeline: Within the next five years 2. Partner with the Department of Learning Outcomes, Curriculum and Program Development to develop a new course in Design and Additive Manufacturing.

	Timeline: Within the next three years
Performance and Equity 62. To what extent are action steps being implemented to address equity gaps, including racial equity gaps?	Waubonsee Community College is implementing five strategies specifically to improve persistence and to close the gap on completion rates. After a thorough review of institutional data, Illinois Equity in Attainment Initiative (ILEA) core team member discussions, and input from college faculty, staff, and students, these five strategies were selected: 1. Developmental Education Reform 2. Disaggregated Data Analysis 3. Diverse Hiring Plan 4. Latinx Student Engagement 5. African American Student Engagement
Responsibility 63. Who is responsible for completing or implementing the modifications?	Faculty with the support of the division and administration.

Career & Technical Education

College Name:	Waubonsee Community College
Academic Years Reviewed:	FY2018-FY2022

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
Fire Science	A.A.S	60	43.0202	• Firefighter (credit hours 16) • Certificate of Achievement (credit hours 40)

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 within this template or results may be reported within its own template. This is at the discretion of the college.

Program Outcomes

1. What are the outcomes of the program? *(i.e., what are the program learning outcomes? What occupations is this program intended to prepare students for?)*

1. Identify construction systems and components that impact firefighting competencies.
2. Interpret the National Fire Protection Association (NFPA) standards and Federal Regulations as they apply to fire science.
3. Demonstrate OSFM (Office of the State Fire Marshal) firefighting competencies.
4. Examine fire service technology and the impact advances will have on the fire services.
5. Apply best practice of community risk reduction concepts to the fire science workplace.

2. To what extent are these outcomes being achieved? Please detail how achievement of program outcomes is being measured or assessed. How do you know if and how outcomes are being achieved? *This may include employment rates of graduates, passing exam/licensure rates, assessment of students meeting Program Learning Outcomes, etc.)*

All outcomes are assessed with questions on the final exams. The goal is for 80% of students to score 80% or higher. Throughout the program, our data shows that these goals are being met.

FSC 140: Fire Apparatus Engineer

Course Outcomes	Assessment Artifact(s)	Achievement Target
Inspect and maintain fire apparatus and their pumps.	Final exam questions numbers 20, 21 and 23	#20 = 100% #21 = 93% #23 = 93%
Safely operate fire apparatus and pumps.	Final exam questions numbers 1 and 3	#1 = 100% #3 = 87%
Calculate and supply proper pressures for hose lines on the fire ground.	Final exam questions numbers 24, 30, 35, 45 and 47	#24 = 93% #30 = 87% #35 = 93% #45 = 80% #47 = 80%

Past Program Review Action 3. What action was reported last time the program was reviewed? Were these actions completed?	**Past goals/actions from the 2018 program review are outlined below:** 1. Analyze assessment data for program outcome to demonstrate firefighting competencies by December 1, 2018. **Response:** All outcomes are assessed with questions on the final exams. The goal is for 80% of students to score 80% or higher. Throughout the program, our data shows that these goals are being met. 2. Develop a formal mentoring program by May 1, 2019. **Response:** No formal mentoring program has been developed. 3. Create new courses to align with new certification standards by May 1, 2019. **Response:** FSC 160, FSC 220 and FSC 231 were realigned, and objectives and curriculum were updated to reflect certification updates. 4. Increase support to non-traditional students that are returning to complete their degree using Prior Learning Assessments (PLA), by providing follow up and counseling. **Response:** While there is no formal program established, full-time faculty meet frequently with all students for advising, career connections, and mentoring.
Review Team 4. Please identify the names and titles of faculty and staff who were major participants in the review of this program. Also describe their role or engagement in this process.	Andrea Montgomery, Assistant Professor of Fire Science and Emergency Medical Technician Toni Ford, Sr. Program Development Coordinator Chadd Engel, Sr. Outcomes Assessment Coordinator Engagement in this process: The team met frequently in the fall semester of 2022 to discuss and complete the program review. Chadd Engel and Toni Ford supported the process and supplied data. Faculty used resources provided to complete the review questions.
Stakeholder Engagement 5. Please list other stakeholders and participants who were engaged in this process (i.e., Student Support Services, students, employers, etc.) Also describe their role or engagement in this process.	Waubonsee's Institutional Effectiveness Department was engaged in this process. They provided the data that faculty need to complete this review. Bi- annual advisory meetings play an integral role in the review of CTE programs at Waubonsee. Stakeholders include students, former students, employers, WIOA partners, and university partners. All stakeholders share input at advisory meetings which informs the curriculum development process. Every fire department in our college district is invited to every advisory council meeting. Participation varies from year to year based on

	each Department. Our three dual credit career centers are also invited to every meeting. Indian Valley Vocational Center regularly sends a representative, while the other two have often been unable to attend.

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.

6. Were pre-requisites for this program (courses, placement scores, etc.) analyzed as part of this review? If yes, please elaborate on any findings or revisions moving forward.	Prerequisites are not required for entry into the Fire Science Program. There are prerequisites in some of the required courses. They were reviewed and there are not any current plans for revisions. Below are the courses that require prerequisites: • FSC 115, Basic Operation Firefighter Module B has a prereq of FSC 105, Basic Operations Firefighter Module A. • FSC 118, Basic Operations Firefighter Module C has a prereq of FSC 105, FSC 115 or concurrent enrollment. • FSC 220, Company Officer Principles has a prereq of FSC 105, FSC 115, FSC 118 or the basic Firefighter certification.
7. Provide a rationale for content/credit hours beyond 30 hours for a certificate or 60 hours for a degree.	The degree for this program is 60 credit hours. The Company Fire Officer Certificate is 40 hours. This certificate exceeds 30 hours to meet the state requirements set by the Illinois Office of the State Fire Marshal.
Indicator 1: Need	**Response**
8. What is the labor market demand for the program? Cite local and regional labor market information. (1.1)	While there is no expected growth for this occupation over the next five years, 261 firefighters are being hired monthly. This gap is due to the State of Illinois fire department hiring process. The recruitment process for firefighters differs from other professions in that it is regulated by State legislation. Fire departments are required to conduct hiring every two years. Applicants are tested and ranked on a list that remains valid for two years. When there is a need for hiring, candidates will be contacted. Candidates not selected must repeat the testing process.
9. How has demand changed in the past five years and what is the outlook for the next five years? (1.2)	According to Lightcast, growth has declined by 4% in the Waubonsee district over the past five years. There is no expected growth over the next five years in the Waubonsee district.

10. Does your enrollment have the capacity to meet the readiness of business and industry?	Waubonsee's Fire Science Program meets the readiness of business and industry. Our current enrollment helps to support the needs of the industry in our district.
11. What labor market information sources are utilized and how often are LMI data reviewed? (1.3)	The labor market information sources used are Lightcast, Illinois Department of Employment Security (IDES), Bureau of Labor Statistics (BLS) and ONET Online. Data is reviewed annually.
12. How does the institution/ program ensure that there is a sufficient "pipeline" or enrollment of students to fulfill the labor market need? (e.g., how/where are students recruited for this program?) (1.4)	To ensure a sufficient pipeline: Students are recruited at local high schools and affiliated vocational centers through individual college visits and college fairs. In addition, Waubonsee also reaches out to community organizations and local businesses to provide information about certificate and degree programs. The college also hosts open houses and recruiting events. Dual credit for high school students is offered for core courses required for the program. The Valley Education for Employment System (VALEES) helps with connecting high school students and college faculty by hosting events and showcasing the college program offerings. The Career and Technical Education Services Manager also provides resources and support to help CTE students overcome barriers to enrollment.
13. How are needs/changes evaluated by the curriculum review committee and campus academic leadership? (1.5)	Several processes are in place to review and evaluate changes to the curriculum: • Faculty participate in state and national organizations, as well as industry advisory committees, to confirm industry needs and potential changes. • Faculty collaborate with deans regarding curricular changes. • All changes proposed by faculty are reviewed by Waubonsee's Curriculum Council. The Council is comprised of program faculty, academic deans, and other staff directly involved in curriculum. The Council is chaired by the Vice President of Educational Affairs. • A checklist is in place and completed prior to Curriculum Council to allow for discussions about the proposed changes.
14. Did the review of program need result in actions or modifications (e.g., closing the program, expanded industry partnerships, revised recruitment, reducing/expanding program offerings)? Please explain.	The review of program need did not result in any actions or modifications.

(1.6)	
Indicator 2: **Cost Effectiveness** *(see ICCB and system resources for cost-effectiveness: https://www.iccb.org/academic_affairs/program-review/)*	**Response**
15. How does the institution assess cost-effectiveness for CTE programming? Consider: • Costs to the institution associated with this program • How costs compare to other similar programs on campus • How the college is paying for this program and its costs (e.g., grants, tuition, fees (lab, technology, background checks, etc.). • Revenue Analysis • Student to faculty ratio • Course/section fill rates • Enrollment trends • Credit hours earned year to year • Scheduling efficiency (2.1)	The institution assesses cost-effectiveness for CTE programming by the direct costs associated with the program. These costs include: • Faculty salary and benefits (full-time and part-time) • Instructional supplies • Technology, software, and services • Publications and dues • Full-time faculty professional development
16. What are the findings of the cost-effectiveness analysis? (2.2)	The prefix cost per load hour for the Fire Science Program is $1,565.55 compared to the average cost of $3,368.67 for all CTE programs. The findings of the cost-effectiveness analysis revealed that The Fire Science Program is operating in a cost-effective manner.
17. 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. (2.3)	The Fire Science Program is funded by the general education fund and uses Perkins V money where appropriate.

<table>
<tr><td>18. How does the institution/program assess student affordability for this program? (Consider if program costs are reasonable, comparable to like programs) (2.5)</td><td>The program assesses student affordability by comparing program costs to like programs. According to IPEDS, in 2021, Waubonsee's Fire Science Program tuition and fees were lower than most other community colleges in the region with a Fire Science Program (See chart below).

<table><tr><td>College</td><td>IPEDS Tuition & Fees (2021)</td></tr><tr><td>Harper</td><td>$9,870</td></tr><tr><td>Elgin Community College</td><td>$7,140</td></tr><tr><td>Joliet Junior College</td><td>$12,570</td></tr><tr><td>McHenry College</td><td>$11,608</td></tr><tr><td>Morton College</td><td>$9,476</td></tr><tr><td>Waubonsee</td><td>$9,271</td></tr><tr><td>Triton</td><td>$11,190</td></tr><tr><td>College of Lake County</td><td>$9,632</td></tr></table></td></tr>
<tr><td>19. How does the institution/ program assist students in overcoming financial barriers to participate in this program? (e.g., WIOA, Ability-to-Benefit, scholarships, grant funding, referral to services, apprenticeship programming)</td><td>The institution assists students in overcoming financial barriers though support programs provided by the college, the state and outside funding. Students can explore their eligibility for financial supports available including financial aid, technology loans, the Perkins Support Program, the Emergency Needs Program, and Waubonsee Foundation Grants. Students may also be referred to WIOA partners for other available supports. Additionally, apprenticeships may be available for some Career and Technical Education programs.</td></tr>
<tr><td>20. How will the college increase the cost- effectiveness of this program?</td><td>The Fire Science Program costs are lower than the average cost of other CTE programs at the college. Currently, there is not a need to increase cost effectiveness. The program is cost-effective.</td></tr>
<tr><td>21. Did the review of program cost result in any actions or modifications? Please explain. (2.6)</td><td>Review of program cost did not result in any actions or modifications.</td></tr>
<tr><td>Indicator 3: Quality</td><td>Response</td></tr>
<tr><td>22. What are the delivery methods of this program? (e.g., traditional format/online/hybrid/team-teaching/ competency-based education, etc.)?

How do the success rates of each delivery system compare? (3.1)</td><td>The Fire Science Program is only offered face-to-face and hybrid; however, the college offers the following delivery methods:

Face-to-Face: Classes meet in a traditional classroom setting on one of Waubonsee's four campuses or authorized extension sites.

Flex: All class sessions meet in-person in a Flex-equipped classroom and are simultaneously live-streamed and recorded through Zoom. After each class, the Zoom recording is posted in Canvas so that students may view or review each session.

Hybrid: Hybrid classes are a combination of instruction and student participation occurring in-person in a traditional classroom on one of Waubonsee's four campuses and occurs asynchronously and/or synchronously online.</td></tr>
</table>

	Online: Online courses are delivered asynchronously. Students learn 100% online through Canvas. **Sync Online**: Sync Online courses are a combination of course instruction and student participation occurring synchronously online through Zoom on the scheduled days and times for the course. The success rates of each modality for Waubonsee over the past five years are listed in the table below:

Success Rate by Modality	Traditional /F2F	Online	Hybrid	Flex	Sync Online	Total
FY18	59%	51%	76%			57%
FY19	62%	57%	59%			61%
FY20	78%	74%	75%			76%
FY21	83%	73%	76%	72%	76%	76%
FY22	78%	73%	70%	68%	73%	73%

23. How does the program ensure that instruction is quality, relevant, contextualized, and culturally responsive? (3.2)	The Fire Science Program ensures that instruction is quality, relevant, contextualized and culturally responsive by following state and national requirements for curriculum. The curriculum also covers first responders' mental health and resiliency. In addition, this program uses recent events and case studies to ensure instruction stays relevant.
24. Is this program part of a Program of Study as defined by Perkins V and approved by the ICCB? If yes, describe any strengths or challenge to program of study implementation. (3.3)	This program is not a part of a Program of Study as defined by Perkins V and approved by ICCB.
25. Does this program meet the definition of a career pathway program? If so, please describe each career pathway element and identify how the college plans to improve the program as it relates to the career pathway system elements. (Examples include connections to adult education including integrated education and training, prior learning assessment, dual credit, support services, career services). If no, please describe if and how the	The Fire Science Program meets the definition of a career pathway program. Items A through G below represent the career pathway elements: **A. The program aligns with the skill needs of industries in the economy of the State or regional economy involved.** • Our classes meet all requirements of the Illinois Office of the State Fire Marshal for certification and employment in the State of Illinois. **B. The program prepares an individual to be successful in any of a full range of secondary or postsecondary**

college will improve the program based on the career pathway elements. (3.4)	**education options, including apprenticeships registered under the National Apprenticeship Act.** • There are no apprenticeships associated with this program. **C. The program includes counseling to support an individual in achieving the individual's education and career goals.** • Our Fire Science instructors engage in the mentoring and counseling of our students. We also connect students with local professionals in the industry in their area to discuss possible opportunities. **D. The program includes, as appropriate, education offered concurrently with and in the same context as workforce preparation activities and training for a specific occupation or occupational cluster.** • This program includes extensive hands-on education and practicals as required by the state and national curriculum. **E. The program organizes education, training, and other services to meet the needs of an individual in a manner that accelerates the educational and career advancement of the individual to the extent practicable.** • This program offers a certificate that builds to the associates degree. It also offers the state-level certifications in a tiered approach. **F. The program enables an individual to attain a secondary school diploma or its recognized equivalent, and at least one recognized postsecondary credential.** • This program has a dual credit opportunity for high school students to begin their education. The program also offers extensive prior learning assessment for individuals who already have industry credentials. **G. The program helps an individual to enter or advance within a specific occupation or occupational cluster.** • Our program offers students extensive networking opportunities as all our instructors are currently working at local fire departments. We also have a strong relationship with our local fire departments which is supported through our advisory council.

26. What innovations, that contribute to quality or academic success, have been implemented within this program that other colleges would want to learn about? (3.5)	The Fire Science Program has arranged and engaged in challenges related to both Fire Science and healthcare. These activities involve scenario-based competitions in which our students and dual credit high school Fire Science students participate. This hands-on experience helps students to excel academically.
27. Describe dual credit implementation for this program (how many students, courses, participating high schools). What are the priority dual credit courses that are offered to high school students? (3.6)	Below describes the dual credit implementation for this program. **FSC 105 Basic Operations Firefighter Module A** **222 Students** Course offered at Fox Valley Career Center, Indian Valley Vocational Center, and Kishwaukee Education Consortium **FSC 115 Basic Operations Firefighter Module B** **215 Students** Course offered at Fox Valley Career Center, Indian Valley Vocational Center, and Kishwaukee Education Consortium **FSC 118 Basic Operations Firefighter Module C** **70 Students** Course offered at Fox Valley Career Center, Indian Valley Vocational Center, and Kishwaukee Education Consortium **FSC 120 Hazardous Materials Operations** **196 Students** Course offered at Fox Valley Career Center, Indian Valley Vocational Center, and Kishwaukee Education Consortium **FSC 125 Advanced Technician Firefighter** **106 Students** Course offered at Fox Valley Career Center, Indian Valley Vocational Center, and Kishwaukee Education Consortium **FSC 140 Fire Apparatus Engineer** **67 Students** Course offered at Fox Valley Career Center **FSC 150 Vehicle and Machinery Operations** **96 Students** Course offered at Fox Valley Career Center and Indian Valley Vocational Center **FSC 215 Vehicle Operations** **254 Students** Course offered at Fox Valley Career Center, Indian Valley Vocational Center, and Kishwaukee Education Consortium

28. Identify what work-based learning opportunities are available and integrated into the curriculum. How do these opportunities improve the quality of the program? In what ways can these opportunities be improved? (3.7)	Students in the Fire Science Program participate in extensive hands-on learning days. Multiple 8-hour Saturday hands-on days in four different courses are included. During these days, we also provide networking and mentoring. This networking provides opportunities for students to be hired on a part-time or on-call basis at local fire departments while completing the program. These opportunities improve the quality of the program by providing students with exposure to the latest industry practices, technologies, and trends. By collaborating with professionals in the field, students can gain insights into the industry's best practices, challenges, and opportunities, which helps develop a better understanding of industry expectations and requirements. This helps prepare students for a successful career in the field. These opportunities can be improved by expanding partnerships with local fire departments to offer more work-based learning opportunities for students. Additionally, the program could provide more structured and formalized mentoring and networking opportunities to help students build relationships and develop connections with industry professionals. By doing so, the program can help students gain even more valuable insights, experience, and connections to support their future success.
29. 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, ASE). (3.8)	All Fire Science courses at Waubonsee are approved by the Office of the Illinois State Fire Marshal (OSFM) for rostered and non-rostered individuals.
30. Are there industry-recognized credentials embedded within this program? If so, please list. (3.9)	Coursework prepares students to complete OSFM certification tests after they receive the appropriate experience or meet other official stated requirements. Certifications include: • Basic Operations Firefighter • Advanced Technician Firefighter • Fire Instructor I • Hazardous Materials First Responder • Fire Service Vehicle Operator • Vehicle and Machinery Operations • Fire Apparatus Engineer • Company Fire Officer
31. Are there apprenticeship opportunities available through this program? If so, please elaborate. (3.10)	Apprenticeship opportunities are not available through this program.

32. If applicable, please list the licensure examination pass rate. (3.11)	Licensure exams are not required for this program.
33. What current articulation or cooperative agreements/initiatives are in place for this program? (3.12)	Articulation or cooperative agreements/initiatives are not in place for this program.
34. Have partnerships been formed since the last review that may increase the quality of the program and its courses? If so, with whom? What opportunities exist for other partnerships? (3.13)	New partnerships have not been formed since the last review.
35. What partnerships (internal or external) have been formed for the advancement of equitable access and outcomes for this program? (3.14)	Internally, the program collaborates with other departments within the college to provide support services to students such as tutoring, counseling, and career services. These partnerships help ensure that students have access to the resources they need to succeed academically and professionally.
36. What professional development or training is offered to adjunct and full-time faculty that may increase the quality of this program? What additional professional development is needed? (3.15)	The college offers in-person and online professional development available through the Office of Faculty Development and Engagement. There are also budget dollars assigned for additional trainings and conferences. There are no additional professional development needs for faculty currently.
37. What professional development is provided for faculty and staff in this program on Diversity, Equity, and Inclusion? (3.16)	The Office of Faculty Development and Engagement at Waubonsee has made training opportunities available through Faculty Development Days. In addition, Diversity, Equity, and Inclusion training is available to faculty from the Association of Colleges and University Educators (ACUE). In addition, DEI professional development is offered to all employees.
38. What is the status of the current technology and equipment used for this program? (3.17)	The Fire Science Program primarily relies on specialized equipment rather than technology. This equipment is critical for preparing students for the challenges they will face in the field. The program has a consistent need to upgrade its equipment, particularly on a rotating basis. This includes replacing air tanks, fire hoses, and other essential gear on a regular schedule to ensure they are up to date and safe to use. Currently, the Fire Science Program's equipment is in good condition, except for a hydraulic generator that needs to be replaced. This replacement is necessary to ensure that the program can continue to provide students with a comprehensive and practical education that prepares them for their future careers.
39. What assessment methods are used to ensure student success? (3.18)	Students complete short answer and multiple-choice quizzes, midterms, and final exams. Students also participate in hands-on exercises which are observed and documented by instructors in accordance with the industry requirements.

40. How are these results utilized and shared with others at the institution for continuous improvement? (3.19)	Results are used to confirm students are meeting individual course learning outcomes. Results are shared annually on Learning Improvement Reports that are reviewed by faculty on the colleges Outcomes Advisory Council.
41. What curriculum revisions to improve program quality and learning outcomes have been made based on the assessment of student learning? (3.20)	While content changes are initiated from the State Fire Marshal, we use assessment results to evaluate and adjust the content delivery methods. And the summative assessment used in each Fire Science course ensures state regulations and standards are being followed.
42. How satisfied are students with their preparation for employment?	Students responded to the following employment related questions on the 2022 Annual Graduating Student Survey: **My major course content was current with practice/procedure in my field (112 responses):** Not at all 3.6% Very little 8.9% Some 35.7% Quite a bit 51.8% **I am satisfied with the job information I received in my major program at Waubonsee (103 responses):** Not at all 7.8% Very little 15.5% Some 29.1% Quite a bit 47.6% **Rate your satisfaction with the Career Development Services (40 responses):** Dissatisfied 5.0% Neutral 20.0% Satisfied 35.0% Very Satisfied 40.0% The Institutional Effectiveness Team is adding a question specific to preparation for employment to the 2023 Annual Graduating Student Survey.
43. How is this student satisfaction information collected? (3.21)	The college administers two institutional level surveys to measure student satisfaction across all programs and disciplines. These surveys are the Ruffalo Noel Levitz (RNL) Student Satisfaction Inventory (SSI) and the Community College Survey of Student Engagement (CCSSE), a service of the Center for Community College Engagement at the University of Texas at Austin.

44. How does the program advisory committee contribute to the quality of the program? How can this engagement be improved? (3.22)	The Fire Science Advisory Committee meets twice per year to review curriculum and to ensure that knowledge, skills, and behaviors are included in the curriculum. Members of the advisory also play a crucial role in providing hands-on learning opportunities for the students in the Fire Science Program.
45. In what other ways are employers engaged in this program? (e.g., curriculum design, review, placement, work-based learning opportunities) (3.23)	The Fire Science Program engages with employers in a variety of ways. Waubonsee has an agreement with the Oswego Fire Department. Students can participate in live fire training exercises at this in-district facility. Other in-district fire departments host courses. Employers also often donate equipment to the college. In addition, events have been hosted by the program. One example is the Fire Science Challenge. This event brought together high school career center students, and college students in a fun competition. Local area employers were invited to attend the event as judges. This was also an opportunity for students to network and learn about hiring information.
46. How satisfied are employers in the preparation of the program's graduates? How is employer satisfaction information collected? (3.24)	A formal process is not in place to collect this information. However, employers often provide positive feedback at the advisory meetings. They also frequently contact Waubonsee faculty with open positions.
47. Did the review of program quality result in any actions or modifications? Please explain. (3.27)	The review of program quality resulted in changes to the program outcomes. The changes were made in collaboration with Fire Science faculty and the Sr. Outcomes Assessment Coordinator. The following changes were made: Previous Program Outcomes: 1. Demonstrate firefighting competencies. 2. Discuss ethical situations applicable to the fire science workplace. 3. Recognize the National Fire Protection Association (NFPA) standards as they apply to fire science. 4. Explain the Occupational Safety and Health Administration (OSHA) standards as they apply to fire science. 5. Describe fire service technology and the impact advances will have on the fire service. 6. Identify construction systems and components that impact firefighter safety. Updated Outcomes: 1. Demonstrate OSFM (Office of the State Fire Marshal) firefighting competencies. 2. Apply best practice of community risk reduction concepts to the fire science workplace.

	3. Interpret the National Fire Protection Association (NFPA) standards and Federal Regulations as they apply to fire science. 4. Examine fire service technology and the impact advances will have on the fire service. 5. Identify construction systems and components that impact firefighter safety.

List any additional barriers encountered while implementing the program not detailed above. Please consider the following: retention, placement, support services, course sequencing, etc.
It is mandatory to have health insurance by the end of the first course in the program (FSC 105) to continue to the next course. This has been a barrier for students because occasionally there are students who do not have health insurance.

Performance and Equity

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. Each year may represent a cohort.

CTE Program	Fire Science				
CIP Code	43.0202				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	104	107	127	116	103
Number of Completers	81	91	48	57	60
Other (Please identify)					

48. What disaggregated data was reviewed? If program enrollment is low, programs may disaggregate data at the department or discipline level. Disaggregated may include, but is not limited to race, ethnicity, gender, age, part-time/full-time status.	The disaggregated data reviewed included enrollments, withdrawals, success rates and grade distribution based on race, age, and gender. Additional data reviewed were course enrollments, credit hours earned, success rates, withdrawal rates and grade distribution for each course taught in the program.

<table>
<tr><td>It may also be appropriate to analyze intersectionality among student demographics (e.g., gender & race, special population status & race, etc.)</td><td></td></tr>
<tr><td>49. How does the data support the program enrollment, completion, persistence, and success goals? Elaborate.</td><td>The average enrollment over the past five years was 111 students. The goal is to remain consistent in the enrollment at the maxim level allowed by our course layout.

The average completion over the past five years is 67 students which is 60% of the average enrollments. This number includes the pandemic years which impacted completion rates. Looking at the next five years, the goal is to have an 80% completion rate.

The disaggregated data provided and analyzed support student success goals because faculty were able to draw conclusions on the current success of students as well as set future success goals.</td></tr>
<tr><td>50. Were there gaps in the data? Please explain.</td><td>In the career field of firefighting there is a disproportional number of white males nationwide. This gap also exists in our data. Our current enrollment includes 85% White, 13% Hispanic and 2% Black students.</td></tr>
<tr><td>51. What suggestions do you have to overcome any identified gaps?</td><td>To overcome the identified gaps in race and gender we should continue partnering with the middle and secondary schools and exposing the students to the Fire Science career.</td></tr>
<tr><td>52. Are the students served in this program representative of the total student population? Please explain.</td><td>In the career field of firefighting there is a disproportionate number of white males nationwide. While we do also find this in our program, we have made a concentrated effort in our program recruitment to encourage minorities in the field including females, Latinx and African American students. We have observed better than average results in these efforts.

Fire Science Ethnicity:
<table><tr><td>Asian</td><td>Black</td><td>Latinx</td><td>White</td></tr><tr><td>0%</td><td>2%</td><td>13%</td><td>85%</td></tr></table>
Fire Science Gender:
<table><tr><td>Female</td><td>Male</td></tr><tr><td>4%</td><td>96%</td></tr></table>
Fire Science Age:</td></tr>
</table>

	<table><tr><td>0-17</td><td>18-21</td><td>22-25</td><td>26-35</td><td>36-45</td><td>46-55</td><td>56-99</td></tr><tr><td>0%</td><td>77%</td><td>10%</td><td>11%</td><td>0%</td><td>2%</td><td>0%</td></tr></table> **Waubonsee Ethnicity:** <table><tr><td>Asian</td><td>Black</td><td>Latinx</td><td>White</td></tr><tr><td>5%</td><td>9%</td><td>32%</td><td>54%</td></tr></table> **Waubonsee Gender:** <table><tr><td>Female</td><td>Male</td></tr><tr><td>59%</td><td>41%</td></tr></table> **Waubonsee Age:** <table><tr><td>0-17</td><td>18-21</td><td>22-25</td><td>26-35</td><td>46-55</td><td>56-99</td></tr><tr><td>2%</td><td>59%</td><td>16%</td><td>13%</td><td>3%</td><td>1%</td></tr></table>
53. Are the students served in this program representative of the district population? Please explain.	The students served in this program are not representative of the district population. In the Fire Science Program, it is 96% male students and 50% in the district. It is 85% white students in the program, compared to 57% in the district. There are no Asian students, 2% Black and 13% Latinx students in the Fire Science Program.
Goal Planning	
54. What are the discipline's strengths? (3.25)	Our program meets all OSFM requirements for certification and offers hands-on practicals for OSFM. We own all the equipment needed for these classes and can supply students with required gear and equipment at no extra cost. Our program also offers extensive networking opportunities for mentoring and networking for entrance into Fire Science as a career.
55. What are the identified or potential weaknesses of the discipline? (3.26)	A potential weakness of the discipline is that the Fire Science Program does not currently offer internship opportunities. Another weakness is the underrepresentation of women and students of color.

56. Describe actions that can be implemented to turn potential weaknesses into strengths.	An action to turn the identified weakness into a strength is to develop an internship program with local fire departments. An action item to increase diversity is we frequently attend high school events ensuring that we specifically send a diverse selection of students to these events to connect with our target populations. We also reach out to campus clubs and activities to share information about our program with a more diverse set of students.
Program Goals 57. List the program goals identified in the last Annual Update. If completed, list three new measurable goals to work on for the next 5 years that address needs identified in this review and that align with the Educational Affairs Plan	Goals from the last program review are listed in question 61. **New goals for the next 5 years include:** 1. Establish an internship program. 2. Improve on our numbers of minority students enrolled in the program. 3. Work within the new OSFM rules to allow our students to take certification exams after course completions.
58. Indicate progress made on last year's measurable program goals aligned with the educational affairs plan.	**Goals from the last 5-year review:** 1. Analyze assessment data for program outcome to describe the laws related to fire science by December 1, 2018. • Complete: All outcomes are assessed with questions on the final exams. The goal is for 80% of students to score 80% or higher. Throughout the program, our data shows that these goals are being met. 2. Develop a mentoring program by May 1, 2019. • Still in progress: No formal mentoring program has been developed. 3. Create new courses to align with new certification standards by May 1, 2019. • Complete: FSC 160 Tactics and Strategy, FSC 220 Company Officer Principles and FSC 231 Company Officer Leadership were realigned, and objectives and curriculum were updated to reflect certification updates. 4. Increase support to non-traditional students that are returning to complete their certificate using PLA by providing follow up and counseling. • Still in progress: While there is no formal program established, full-time faculty meet frequently with all students for advising, career connections, and mentoring.

Resources and Support 59. List and describe resources and support needed to implement the goals listed above and other needs to sustain improvements to your program. (Example: Tutoring, software, professional development)	Resources needed aligned with new goals: Establish an internship program. • Administration support Improve on our numbers of minority students enrolled in the program. • Continued support from Marketing for recruitment efforts. Work within the new OSFM rules to allow our students to take certification exams after course completions. • Support from assessment and testing services as the number of tests increase with the recent changes to the OSFM rules and to offer the EMT test. Additional support needed: • Additional updating of equipment is necessary to have productive hands-on learning sessions.
Review Results	
Action	☒ Continued with Minor Improvements ☐ Significantly Modified ☐ Placed on Inactive Status ☐ Discontinued/Eliminated ☐ Other (please specify)
Summary Rationale 60. Please provide a brief rationale for the chosen action.	Although we feel our program is strong in our enrollments and ability to provide skilled workers to the industry, we are always seeking to continue to improve in these areas.
Intended Action Steps 61. What are the action steps resulting from this review? Please detail a timeline and/or dates for each step.	Work with industry partners to secure opportunities for internships. Timeline: Ongoing Create programs and events that will expose minority students to the career. Timeline: One event per year over the next five years Faculty to become familiar with the new OSFM rules to better advise students. Timeline: Within the next 12 months
Performance and Equity 62. To what extent are action steps being implemented to address equity gaps, including racial equity gaps?	Waubonsee Community College plans to implement five strategies specifically to improve persistence and to close the gap on completion rates. After a thorough review of institutional data, Illinois Equity in Attainment Initiative (ILEA) core team member discussions, and input from college faculty, staff, and students, these five strategies were selected: 1. Implement Developmental Education Reform 2. Disaggregated Data Analysis 3. Diverse Hiring Plan 4. Latinx Student Engagement 5. African American Student Engagement

Responsibility 63. Who is responsible for completing or implementing the modifications?	It is the responsibility of full-time faculty with the support of Administration.

Academic Disciplines	
College Name:	Waubonsee Community College
Academic Years Reviewed:	FY18-FY22
Discipline Area:	Mathematics

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 Outcomes 1. What are the outcomes of the discipline?	• Use logical reasoning and mathematical principles to solve problems. • Interpret information and reasoning expressed mathematically (symbols, tables, graphs, formula, etc.). • Communicate mathematical information effectively.
2. To what extent are these outcomes being achieved? *How do you know the extent to which they are being achieved?*	Program outcomes are indirectly assessed each year through course outcomes that are based on these program outcomes. Each year 2-4 courses have outcomes assessed as part of the 5-year assessment plan. All math courses are assessed at least once in each 5-year period. Assessments of Institutional Learning Outcomes (ILO's) (also known as our general education outcomes) have also been carried out in certain courses and are now embedded in the five-year cycle of assessment. Achievement of the program outcomes can be inferred from the success rates of math courses as well as the data collected from outcomes assessments.
3. How do you use the information gained from assessment to improve student learning? *What curriculum revisions have you made to improve program quality that have been based on the assessment of student learning?*	Annual assessment plans, collected data, and summary results are shared with all relevant faculty. Individual classroom instruction is adjusted accordingly. Additionally, adoption of less expensive textbooks and Inclusive Access in MTH 101, 107, 109, 129, 130, 131, 132, 201, 202, 211, and 233 were implemented to improve access to materials by students with the intention of improving outcomes. Based on outcomes and assessment of MTH 211, adjustments were made to the curriculum in MTH109. There was also an adjustment of curriculum in the Calculus sequence to better support course outcomes.

4. How does this discipline contribute to other fields and the mission of the college, including addressing the college's vision for equitable access for students?	Many math courses (MTH 101, 102, 107, 131, 132, 233, 202, 210, and 211) fulfill the General Education Core Curriculum (GECC) requirement. Some courses serve as prerequisites for those courses (MTH 109, 129, 130, 131, 132). Some courses meet the needs of other programs (MTH 103, 104, 201, 202, 210, 211) or serve majors in STEM fields (MTH 131, 132, 233, 236, 240). Nearly all math courses are IAI transferable or meet some other articulated transfer agreement. All math courses at Waubonsee are designed to fulfill a purpose beyond the mathematics discipline. By adopting Open Educational Resources (OER) and Inclusive Access, incorporating more technology like graphing calculators and Excel, and digital resources (recorded lectures, interactive applications, etc.) into a wide range of courses, the discipline is supporting access to all students regardless of economic status, disability, and culture.
Review Team 5. Please identify the names of faculty and staff who were major participants in the review of this program.	**Full-time Math Faculty:** William Trunkhill, Professor of Mathematics Amy Frankel, Professor of Mathematics Mark Crawford, Professor of Mathematics Dr. Steven Kifowit, Assistant Professor of Mathematics **Staff:** Toni Ford, Sr. Program Development Coordinator
Prior Review Update 6. Describe any quality improvements or modifications made since the last review period.	ILOs for math courses have been updated to reflect which outcomes more accurately are being assessed in each course. All math courses have critical thinking and several courses (those which are heavy in data analysis) also have quantitative literacy. Several official course outlines have been updated: MTH 101, 109, 129, 107, 131, 132, 233, 240. Most changes to the course outlines were made for clarity, not to significantly change the course. However, there were more significant changes to MTH 107 based on updates by the Illinois Articulation Initiative (IAI). By adopting OER and Inclusive Access, incorporating more technology like graphing calculators and Excel, and digital resources (recorded lectures, interactive applications, etc.) into a wide range of courses, the discipline is supporting access to all students regardless of economic status, disability, and culture. Changes and updates to courses that have a corequisite course were made in collaboration with faculty in the Developmental Math Department. Also, in collaboration with Developmental Math faculty, MTH 101 and MTH 109 corequisite courses have been added to meet student needs and legislative requirements.

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
7. What mechanisms are in place to determine needs/changes for AA, AS, AFA, and AES academic programs? How are needs/changes evaluated by the curriculum review committee and campus academic leadership? (1.1)	Faculty collaborate with their deans on curricular changes that address discipline needs and review information provided during the semester. Each academic division has a specific counselor assigned as a mechanism to gather feedback from students and from transfer institutions. Faculty also serve on the IAI panel, which keeps the institution informed on updates to the discipline. When there is a need to change curriculum, it is presented at Curriculum Council and is voted on by the entire committee. Curriculum is overseen by the college's Curriculum Council along with the Vice President of Educational Affairs, who serves as the chair.
8. How will students be informed or recruited for this discipline? (1.2)	Students are informed and recruited for this discipline through the Math and Engineering Club, College Night, Explore Majors Fair, campus visits by local high schools and events based on activities through Student Life. For the most part, students are not recruited for math courses. Most students take math courses to fulfill the GECC requirement, to fulfill STEM, business, or education major requirements, or to obtain necessary prerequisites.
9. What, if any, new Academic Transfer degrees/major options have been added/deleted to the college's offerings during the last review period? What determined this action? (1.3)	Waubonsee has not added nor deleted academic degrees or major options to or from the college's offerings since the last review period.
10. How many total courses are offered by the college in this discipline? What courses see the largest need (enrollment) from students? (1.4)	There are seventeen math courses offered: MTH 101, 102, 103, 104, 107, 109, 129, 130, 131, 132, 201, 202, 210, 211, 233, 236, 240. MTH 107 and MTH 101 are the courses with the highest demand. These courses are part of the GECC, and they are typically the math GECC courses of choice for students who are not STEM, education, or business majors.

Indicator 2: Cost Effectiveness	Response
11. What are the costs associated with this discipline? (How does the operational cost of this discipline compare to that of other baccalaureate/transfer disciplines and all programs offered by the college overall? What are the primary costs associated with this discipline? How many full- and part-time faculty are maintained for this discipline?) (2.1)	The costs associated with the mathematics discipline include: • Faculty pay and benefits • Departmental instructional expenses The Mathematics prefix cost per load hour is 12% higher than the average cost per load hour of all baccalaureate/transfer programs at Waubonsee. The prefix cost per load hour is $2,248.32. The average cost per load hour for baccalaureate/transfer programs is $1,976.61. There are five full-time and thirteen adjunct faculty members currently teaching in the mathematics discipline. There are an additional four faculty who are full-time in other disciplines and teach mathematics courses.
12. What steps can be taken to offer curricula more cost-effective? (2.2)	The math faculty have taken steps to offer curricula more cost-effectively. Examples include implementing free OER textbooks, and reduced cost Inclusive Access. Additionally, by allowing students to use Excel in MTH107, they do not have to purchase a calculator – the college has a MS Office license for student and faculty use.
13. Is there a need for additional resources? (2.3)	The math faculty have determined that more TI-84 calculators need to be made available for checkout in the IT/Library. Also, a set of classroom calculators (similar to laptop carts) is needed as well as more laptop carts.
Indicator 3: Quality	**Response**
14. Are there any alternative delivery methods of this discipline? (e.g., online, flexible scheduling, accelerated, team teaching, etc.) (3.1)	The discipline offers the mathematics courses in the following delivery methods: **Face-to-Face**: Classes meet in a traditional classroom setting on one of Waubonsee's four campuses. **Flex:** All class sessions meet in-person in a Flex-equipped classroom and are simultaneously live-streamed and recorded through Zoom. After each class, the Zoom recording is posted in Canvas so that students may view or review each session. **Hybrid:** Hybrid courses are a combination of instruction and student participation occurring in-person in a traditional classroom on one of

<table>
<tr><td></td><td>Waubonsee's four campuses and occurs asynchronously and/or synchronously online.

Online: Online courses are delivered asynchronously. Students learn 100% online through Canvas.

Sync Online: Sync Online courses are a combination of course instruction and student participation occurring synchronously online through Zoom on the scheduled days and times for the course.</td></tr>
<tr><td>15. If the college delivers a course in more than one method, does the college compare success rates of each delivery method? If so, how? How does the college provide supports to students to ensure that they have equitable access to these different course delivery methods? (3.2)</td><td>The college delivers its courses in multiple modalities and the success rates are listed below:

<table>
<tr><th>Success Rate by Modality</th><th>Traditional /F2F</th><th>Online</th><th>Hybrid</th><th>Flex</th><th>Sync Online</th><th>Total</th></tr>
<tr><td>FY18</td><td>59%</td><td>51%</td><td>76%</td><td></td><td></td><td>57%</td></tr>
<tr><td>FY19</td><td>62%</td><td>57%</td><td>59%</td><td></td><td></td><td>61%</td></tr>
<tr><td>FY20</td><td>78%</td><td>74%</td><td>75%</td><td></td><td></td><td>76%</td></tr>
<tr><td>FY21</td><td>83%</td><td>73%</td><td>76%</td><td>72%</td><td>76%</td><td>76%</td></tr>
<tr><td>FY22</td><td>78%</td><td>73%</td><td>70%</td><td>68%</td><td>73%</td><td>73%</td></tr>
</table>

The college provides online and technical support such as Canvas orientation and support, online and remote services, Wi-Fi access, computer labs, equipment loans such as laptops, software, hotspots, and any internet needs. Online tutoring and writing help are available at no cost, 24/7 to any Waubonsee student via Smarthinking Tutoring. Smarthinking Tutoring has live, on-demand tutoring, an online writing lab, a place to ask questions, and opportunities to make an appointment with a tutor.</td></tr>
<tr><td>16. What assessments does the discipline use to measure fulltime and adjunct instructor performance in the classroom? (3.3)</td><td>The adjunct and non-tenured faculty are observed by administration yearly.</td></tr>
<tr><td>17. What professional development is offered for full- and/or part-time faculty in this discipline? Is all professional development offered to both full time and adjunct faculty? (3.4)</td><td>Professional development is offered through the Faculty Development and Engagement (FDAE) Office during Faculty Development Days (FDD), and other events throughout the year. All professional development through FDAE is offered to both full-time and adjunct faculty.

In addition, full-time faculty have a stipend that can be used to attend conferences and take graduate courses in the discipline or in the field of education. Adjunct faculty are invited to enroll in opportunities outside of Waubonsee throughout the year including participation in the Association of College and University Educators (ACUE) and</td></tr>
</table>

	Quality Matters (QM) certifications. In addition, all assessment of student learning sessions at FDD are compensated sessions for adjunct faculty.
18. How many faculty have been actively involved in IAI panel review for courses in this discipline over the last review period? (3.5)	In the past five years, mathematics faculty have not been involved in the IAI panel review.
19. How does the discipline identify and support "at-risk" students? What supports are available to these students and how are students made aware of these supports? (3.6)	To identify and support at-risk students, faculty are encouraged to participate in the Early Alert system and other initiatives across all campuses, send students to the Tutoring Center, and work with struggling students more closely.
20. To what extent is the discipline integrated with other instructional programs and services? (3.7)	Many math courses (MTH 101, 102, 107, 131, 132, 233, 202, 210, & 211) fulfill the GECC requirement. Some courses serve as prerequisites for those courses (MTH 109, 129, 130, 131, 132). Some courses meet the needs of other programs (MTH 103, 104, 201, 202, 210, 211) or serve majors in STEM fields (MTH 131, 132, 233, 236, 240). Nearly all math courses are IAI transferable or meet some other articulated transfer agreement. All math courses at Waubonsee are designed to fulfill a purpose beyond the mathematics discipline.
21. What does the discipline or department review when developing or modifying curriculum? (3.8)	The math discipline reviews the following when developing or modifying curriculum: IAI course details, course objectives and outcomes, programs at local universities, effects on other programs/majors/disciplines.
22. When a course has low retention and/or success rates, what is the process to address these issues? Are data reviewed to determine if one student population is disproportionately affecting course success rates? If so, how does the college address these disparities? (3.9)	Aggregate data across course sections are reviewed and discussed annually by math faculty. Aggregate course data and disaggregated equity data is provided to faculty annually. Faculty are encouraged to assess courses with low success or retention rates. Waubonsee provides professional development on equitable teaching practices at FDD in August and January. High Impact Practices (HIP's) are shared to address disparities in student success and retention.

23. How does the college determine student success in this discipline? (3.10)	Student success in the Math discipline equates to a final course grade of C or better. The college also defines success as 70%.
24. Did the review of quality result in any actions or modifications? Please explain. (3.11)	The review of quality did not result in any actions.

List any barriers encountered while implementing the discipline.

Over the last five years, the pandemic has been a barrier. Students and faculty have had to adjust to alternative teaching methods/modalities to meet the student learning outcomes.

Performance and Equity

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

Academic Discipline Area	Mathematics				
Course Title	MTH 101 College Mathematics				
Course Description	This course in mathematics is designed to satisfy the general education requirement at the university level. The emphasis of the course is on understanding logical arguments, doing abstract thinking, and solving real world problems. Topics covered include logical statements and arguments, geometry in problem solving, unit conversions, estimation, approximation, and judging reasonableness of answers, problem solving and statistics.				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	527	575	503	385	404
Credit Hours Produced	1581	1725	1509	1155	1212

Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	65%	67%	74%	66%	66%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	IAI: M1 901				

Course Title	MTH 102 Applied Practical Math				
Course Description	This course is designed to help students develop mathematical reasoning and real-world problem-solving skills. Topics covered include applications of geometry, counting techniques and probability, statistics and graph theory.				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	107	104	87	104	105
Credit Hours Produced	321	312	261	312	315
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	88%	88%	86%	92%	89%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	IAI: M1 904				

Course Title	MTH 103 Technical Mathematics				
Course Description	This course, intended primarily for those students majoring in the technical-vocational areas, includes an elementary review and survey of arithmetical operations, common fractions, fundamentals of algebra, mensuration formulas and geometry.				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022

Number of Students Enrolled	54	54	64	27	58
Credit Hours Produced	162	162	192	81	174
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	52%	61%	75%	59%	66%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	Eastern Illinois University 12/14/2021				

Course Title	MTH 104 Business Mathematics				
Course Description	Business Mathematics is a comprehensive introduction to the concepts and applications of mathematics to personal and commercial business problems. Basic arithmetic and problem solving techniques used in sales, marketing, banking, finance, accounting, consumer and other business situations are emphasized.				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	93	58	77	93	79
Credit Hours Produced	279	174	231	279	237
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	75%	76%	78%	80%	62%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	Eastern Illinois University 12/14/2021				

Course Title	MTH 107 Basic Statistics				
Course Description	This course focuses on statistical reasoning and the solving of problems using real-world data rather than on computational skills through the use of technology-based computations with an emphasis on interpretation and evaluation of statistical results. Topics include data collection processes, descriptive methods using quantitative and qualitative data, bivariate data, correlation, and least squares regressions, basic probability theory, probability distributions (normal distributions and normal curve, binomial distribution), confidence intervals, and hypothesis tests using p-values.				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	866	789	792	820	1248
Credit Hours Produced	2598	2367	2376	2460	3744
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	58%	67%	69%	70%	76%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	IAI: M1 902				

Course Title	MTH 109 Algebra for Business and Social Science
Course Description	This course is designed to provide the Business, Nursing, Education, or other non-STEM student with basic algebraic concepts necessary to continue in non-STEM related mathematics courses. Topics include: real numbers, using algebraic methods to find solutions of inequalities and equations, coordinate systems, functions, polynomials, rational functions, radical functions, exponential and logarithmic functions, graphing and transformations of functions, and algebraic methods to solve systems of equations. While there may be overlap with topics from Precalculus I, this course develops these topics in a non-rigorous manner and does not meet the prerequisite requirement for MTH131 Calculus With Analytic Geometry I.

	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	246	298	259	213	156
Credit Hours Produced	738	894	777	639	468
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	67%	66%	69%	72%	64%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	Eastern Illinois University 12/14/2021 Southern Illinois University 8/15/2017 University of Illinois at Chicago 2/15/2017 University of Illinois, Urbana-Champaign 2/21/2017 Northern Illinois University 2/10/2017				

Course Title	MTH 129 Precalculus I				
Course Description	This course is designed to provide the STEM student with basic algebraic concepts needed to continue on to MTH131. Topics include: real numbers, complex numbers, algebraic methods to find solutions of inequalities and equations, coordinate systems, functions, polynomials, rational functions, radical functions, absolute value of functions, and graphing and transformations of functions. While there may be overlap with topics from College Algebra, this course develops these topics in a rigorous manner and should not be considered equivalent to Algebra for Business and Social Science (MTH109).				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	243	329	394	284	569
Credit Hours Produced	729	987	1182	852	1707

Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	61%	67%	67%	67%	67%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	Southern Illinois University Carbondale 8/21/2017 University of Illinois at Chicago 2/15/2017 University of Illinois, Urbana-Champaign 2/21/2017 Northern Illinois University 2/10/2017 Eastern Illinois University 12/14/2017				

Course Title	MTH 130 Precalculus II				
Course Description	This course in trigonometry of the plane concentrates on trigonometric, exponential, and logarithmic functions and their applications. Topics covered include the trigonometric functions, solution of right triangles, radian measure, fundamental identities, angular measure, graphs, logarithms, functions of composite angles, oblique triangles, trigonometric equations, inverse trigonometric functions, and complex numbers (including powers and roots).				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	231	255	326	254	459
Credit Hours Produced	693	765	978	762	1377
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	65%	77%	75%	79%	71%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	Southern Illinois University Carbondale 8/21/2017 University of Illinois at Chicago 2/15/2017 University of Illinois, Urbana-Champaign 2/21/2017 Northern Illinois University 2/10/2017				

	Eastern Illinois University 12/14/2017

Course Title	MTH 131 Calculus with Analytic Geometry				
Course Description	This first course in calculus presents analytic geometry and the calculus of algebraic and transcendental functions including the study of limits, derivatives, differentials and an introduction to integration. The techniques of calculus will be used to analyze functions and their graphs, solve real-world applications, develop computational and numerical methods, and analyze the relationship between differentiation and integration using the Fundamental Theorem of Calculus.				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	262	229	272	278	434
Credit Hours Produced	1048	916	1088	1112	1736
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	67%	68%	67%	76%	86%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	IAI: M1 900-1, MTH 901				

Course Title	MTH 132 Calculus With Analytic Geometry II
Course Description	This second course in calculus and analytic geometry is a continuation of MTH 131. Topics covered include formal integration techniques, numerical integration, area between two curves, volumes of revolution, average value of a function, work, center of mass, improper integrals, arc length, surfaces of revolution, polar coordinates, slopes in polar coordinates, areas in polar coordinates, parametric equations, calculus with parametric equations, sequences, series, the integral test,

	alternating series, comparison tests, absolute convergence, ratio and root tests, power series, calculus with power series, Taylor series, and Taylor's Theorem.				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	181	157	157	149	291
Credit Hours Produced	724	628	628	596	1164
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	62%	62%	74%	65%	80%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	IAI: M1 900-2, MTH 902				

Course Title	MTH 201 Mathematics for Elementary Teachers I				
Course Description	This second course in mathematics for elementary education majors follows the curriculum standards of the National Council of Teachers of Mathematics. Topics include: probability, statistics, geometry, and measurement. Emphasis is on math content and manipulatives used to teach mathematics in grades K-8.				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	98	81	103	119	94
Credit Hours Produced	294	243	309	357	282
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	77%	83%	85%	92%	83%

IAI Status (list code) or Form 13 Status (list signature dates and institutions)	Eastern Illinois University 12/14/2021

Course Title	MTH 202 Mathematics for Elementary Teachers II				
Course Description	This second course in mathematics for elementary education majors follows the curriculum standards of the National Council of Teachers of Mathematics. Topics include: probability, statistics, geometry, and measurement. Emphasis is on math content and manipulatives used to teach mathematics in grades K-8.				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	85	58	91	106	67
Credit Hours Produced	255	174	273	318	201
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	84%	88%	99%	91%	93%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	IAI: M1 903				

Course Title	MTH 210 Finite Mathematics				
Course Description	This course is intended for students in business, economics, or social and life sciences with applications from these fields. Topics covered include vectors, determinants, matrices, systems of inequalities, linear programming, simplex method, sets and counting, probability theory, stochastic processes, Markov processes, and the mathematics of finance.				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022

Number of Students Enrolled	61	43	21	27	13
Credit Hours Produced	183	129	63	381	39
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	56%	51%	57%	74%	69%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	IAI: M1 906				

Course Title	MTH 211 Calculus for Business and Social Science				
Course Description	This course presents an elementary treatment of topics from differential and integral calculus. It is intended primarily for students in the fields of business and social science. The emphasis is on skill-building and on applications of calculus to the areas of business, economics, and social science. The types of functions studied include polynomials, rational, exponential, and logarithmic. Multivariable content includes applications of partial derivatives.				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	218	233	204	170	112
Credit Hours Produced	808	932	816	680	448
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	52%	70%	81%	66%	63%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	IAI: M1 900-B				

Course Title	MTH 233 Calculus With Analytic Geometry III				
Course Description	This third course in calculus and analytic geometry is a continuation of MTH132. Topics include vectors, vector-valued functions, space curves, multivariate functions, partial derivatives, differentials, directional derivatives, gradients, double and triple integrals, vector fields, line integrals, and the theorems of vector calculus.				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	79	97	80	84	82
Credit Hours Produced	316	388	320	336	328
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	76%	86%	96%	89%	88%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	IAI: M1 900-3, MTH 903				

Course Title	MTH 236 Introduction to Linear Algebra				
Course Description	This course covers basic concepts and techniques of matrix theory and linear algebra. It includes systems of linear equations, operations with matrices, inverses, determinants, vector spaces, inner product spaces, linear transformations, eigenvalues and eigenvectors. Numerical iterative methods are discussed, and formal proof constructions are stressed.				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	0	13	25	24	12
Credit Hours Produced	0	52	100	96	48

Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	0	100%	88%	83%	92%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	IAI: MTH 911				

Course Title	MTH 240 Differential Equations				
Course Description	This course is designed to introduce basic theory, techniques, and applications of differential equations. Several types of differential equations will be solved including linear equations of the first and second order, exact equations, separable equations, non-linear equations, and partial differential equations. Method of solutions will include variation of parameters, undetermined coefficients, series solutions, numerical solutions, graphical solutions and the Laplace Transform.				
	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of Students Enrolled	38	53	40	49	43
Credit Hours Produced	114	159	120	147	129
Success Rate (% C or better) at the end of the course, excluding Withdrawals and Audit students	79%	83%	85%	92%	63%
IAI Status (list code) or Form 13 Status (list signature dates and institutions)	IAI: MTH 912				

25. How does the data support the course goals? Elaborate.	Overall, success rates indicate that course goals are being met. Success rates for almost all courses are at the 70% level or higher.
26. What disaggregated data was reviewed?	The disaggregated data that was reviewed includes enrollments, withdrawals and success rates based on race, age, and gender. Also

	reviewed is the grade distribution by race, age, and gender. In addition, we looked at individual course enrollments, credit hours earned, success rates, withdrawal rates, and grade distribution for each course that is taught in the discipline.
27. Were there identifiable gaps in the data? Please explain.	Discipline enrollment by race and ethnicity has been consistent over five years. Discipline enrollment by age is also consistent except for 2022 when there was a dramatic increase in students under age 18 from dual credit enrollment. Discipline enrollment by gender is roughly 50/50 and is consistent. For years 2018-2020, males exceeded females. For years 2021-2022, females exceeded males. Withdrawal rates by race/ethnicity, age, and gender have been consistent over five years. Withdrawal rates of Black, Latinx, and other students of color are consistently higher than those of White and Asian students. Success rates by race/ethnicity, age, and gender have been consistent over five years. Success rates of Black, Latinx, and other students are consistently (and probably significantly) lower than those of White and Asian students. Success rates by age show that students under age 18 and those over age 45 are proportionately more successful. Grade distributions show fewer A's for Black, Latinx, and other students than for White and Asian students.
Goal Planning	
28. What are the discipline's strengths?	• A wide variety of math courses available to students. • Many resources available to students to help them accomplish their educational goals. • Faculty working to get the students' costs reduced by offering OER and Inclusive Access resources. • The faculty have many years of experience teaching math courses. • Faculty schedules and modes of contact are flexible to meet the needs of students.
29. What are the identified or potential weaknesses of the discipline?	• Many courses require the TI-84 calculator which is very expensive. • A faculty member is retiring after this semester.
30. Describe actions that can be implemented to turn potential weaknesses into strengths.	The library has a calculator loan program. Faculty are working with the library to get more calculators on hand for students to borrow and for a longer period of time.

	Access to TI-84 online calculator. Purchasing a classroom set of calculators to be used only in class. Have a plan for the courses that were taught by the retired faculty member. Access to borrow TI-84 calculator loan program will be reviewed further to see if it can be pursued as a college-wide initiative.
Program Goals 31. List the program goals identified in the last Annual Update. If completed, list three new measurable goals to work on for the next 5 years that address needs identified in this review and that align with the Educational Affairs Plan.	Explore and then develop additional courses and modalities to broaden our course offerings. This includes possible changes to the Math for Elementary Teachers courses. Review and monitor the effectiveness of the new precalculus courses and the new Algebra for Business and Social Science course. Other than anecdotal evidence, we have not gathered data due to the departure of one faculty member and being understaffed as a department. Work towards finding OER that are readily available that help to support ESL students with their math vocabulary.
32. Indicate progress made on last years measurable program goals aligned with the educational affairs plan.	**Goal 1**: Continue to find and select high quality open source or inexpensive materials. To this end, we have changed the text for our Calculus sequence to the OpenStax texts. The open-source text previously chosen was not meeting our needs or quality standards. We will continue to monitor how well this new text is working. **Response:** MTH 130 has moved to the OpenStax book. The Calculus sequence seems to be doing well with the OpenStax book. MTH 107 has moved away from the OpenStax to a text that uses ALEKS and many sections are using Inclusive Access. MTH 211, 201, 202, 109 and 129 have all adopted Inclusive Access. Inclusive Access has been a nice transition for many students. It keeps the cost low and provides students with immediate access to the online homework system and e-book. **Goal 2:** Review and monitor the effectiveness of the new precalculus courses and the new Algebra for Business and Social Science. Other than anecdotal evidence, we have not gathered data due to the departure of one faculty member and being understaffed as a department. **Response:** This will continue to be a goal. We can now start to look at the data. (See artifact "Math course taking data request.") We would have liked to work on other goals but being understaffed has

	limited our resources. Now that we have one additional faculty member, we can start to focus on the following additional goals. **Goal 3:** Development of our local chapter of Mu Alpha Theta Honor Society. **Response:** Membership was zero during the pandemic. **Goal 4:** Coordination with the Tutoring Center to better support our students or explore other models for support. **Response:** Some outreach has occurred to coordinate review sessions in the Calculus sequence. Remote tutoring has been continuous. Working with Academic Support to participate in the embedded tutor pilot program for the online section of MTH 211 and one online section of MTH 107 in the Spring of 2022. **Goal 5:** Coordination with the Developmental Math faculty to identify and create more corequisite courses. **Response:** A corequisite for MTH 109 has been implemented during Fall 2020. As of Fall 2022, a corequisite for MTH 101 has been implemented. MTH 129 is still being developed. **Goal 6:** Explore and then develop additional courses and modalities to broaden our course offerings. This includes possible changes to the Math for Elementary Teachers courses. **Response:** This is still a goal. This semester, we have been working with various modalities for virtually all of our courses.
33. If program goals are not being met, what action steps will be taken to achieve them?	The faculty in this discipline are meeting the goals they have set or are still working towards them.
Academic Course Review Results	
Intended Action Steps 34. Please detail action steps to be completed in the future based on this review with a timeline and/or anticipated dates.	1. OER will be piloted in MTH 236 in Spring 2023. 2. In Spring 2023, faculty will assess the possibility of using OER in MTH 240 with possible implementation in Fall 2023. 3. In Spring 2023, faculty will survey students about interest in Mu Alpha Theta. 4. Faculty are working on increasing access to TI-84 calculators through different avenues of the library, licenses for online version, and classroom sets. The goal is to have at least some of these options included in the FY2023-2024 budget.

	5. A data request will be submitted in Spring 2023 regarding completion and success rates of students in MTH 109, 129, 130 and their completion and success rates in MTH 211 and 131 to determine the effectiveness of the implementation of these new courses. A meeting will be scheduled after the data request is fulfilled. 6. Faculty have requested two additional laptop carts be added to the FY2023-2024 budget.
Performance and Equity 35. To what extent are action steps being implemented to address equity gaps, including racial equity gaps?	• Continued emphasis on OER, Inclusive Access, and/or relatively inexpensive textbooks is, in a large part, meant to address equity gaps. Mathematics faculty prioritize educational affordability. • The implementation of two different precalculus (MTH 109 vs. MTH 129/130) paths was based solely on student success. This design is currently being evaluated. • At Waubonsee, we are implementing corequisite models for a variety of reasons. We expect that equity is improved by corequisite support. • Continued emphasis on access to technology for all students in all courses.
Rationale 36. Provide a brief summary of the review findings and a rationale for any future modifications.	Overall, success rates in mathematics courses indicate that course/program goals are generally being met. Lower success rates among Black, Latinx, and other students indicate that problems with equity are prevalent. Faculty are working diligently to address equity issues.
Resources and Support 37. List and describe resources and support needed to implement the goals listed above and other needs to sustain improvements to your program. (Example: Tutoring, software, professional development).	The goal of increased access to technology for all students in all courses, specifically TI-84 calculators, and laptops, will require funds in the budget, and cooperation from IT and the library.
Responsibility 38. Who is responsible for completing or implementing the modifications?	It is the Faculty who are responsible for completing or implementing the modifications with the support of administration.

DEVELOPMENTAL MATH	
COLLEGE NAME:	Waubonsee Community College
FISCAL YEAR IN REVIEW:	FY2018 - FY2022
REVIEW SUMMARY	
Program Outcomes What are the outcomes or goals of the program/discipline?	The primary goal of the Developmental Math Program is to prepare students for success in college-level courses requiring math skills. To this end, the program is designed to teach students to: 1. Analyze various mathematical problems. 2. Apply appropriate mathematical processes. 3. Communicate a logical solution.
To what extent are these outcomes or goals being achieved? How do you know the extent to which they are being achieved?	The program's goals and outcomes are measured using various data elements such as success rates and course outcomes assessment. We continue to use the systematic approach to outcomes assessment developed by the MTH faculty to assess MTH 061, MTH 062, MTH 066, MTH 067, MTH 071, MTH 072, and MTH 075. As an assessment method, faculty use common final exams and a final exam rubric. All the faculty were required to report data for their courses as determined by the 5-year plan. Faculty meet to discuss assessment data annually. As a result of the Education and Workforce Equity Act (House Bill 2170) which called all higher education intuitions to create and submit a Developmental Education Reform Act plan, the MTH course pathway was revamped to accelerate students. Consequently, the data for MTH 061, MTH 062, MTH 071, and MTH 072 are no longer relevant. Data collected for MTH 066 and MTH 067 indicated a need to reorganize some of the learning objectives between the two courses. Data for MTH 075 was collected in Fall 2020, but due to COVID-19, not reviewed. Data were not collected from Spring 2021 through Spring 2022 due to COVID-19 and changes in curriculum.

How does this program contribute to other fields and the mission of the college?	As the College aims to provide programs and services that are academically accessible to meet the educational and training needs of a diverse, multicultural population, the Developmental Math Program is one approach chosen to support this commitment. Developmental education math courses prepare students who are not considered college-ready to succeed in transfer-level classes. The program also contributes to goals in the College's strategic plan, in particular, the goal of reducing time to completion.
Prior Review Update Describe any quality improvements or modifications made since the last review period.	Corequisite courses were first offered in Fall 2018 and are cross listed with a transfer math course. The corequisite courses provide additional scaffolding to support student learning. The corequisite courses offered are MTH 081 effective Fall 2021, MTH 087 effective Fall 2018, and MTH 089 effective Fall 2020. In 2020, we began developing a new STEM pathway in alignment with HB-2170. MTH 068 & MTH 069 replace MTH 061, MTH 062, MTH 071, and MTH 072. The new STEM pathway has multiple entry points and reduces the time and cost required to complete the developmental STEM sequence. These courses were first offered Fall 2022. Beginning March 2020, new modalities were implemented due to COVID-19. The new modalities are Sync Online, FLEX, and Hybrid. These modalities, along with face-to-face and asynchronous online, are the current modalities offered. In Fall 2021, the ASPIRE Grant provided resources for developing a new math bridge program. The goal of the bridge program is to advance students through developmental math by one or more courses, reducing time to completion. The math bridge program is being piloted Summer 2023.

REVIEW ANALYSIS

mplete 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 information is provided.

Indicator 1: Need	**Response**

1.1 Detail how the offerings are sufficient and aligned to meet the needs of students across all programs served and supportive academic programs (e.g., tutoring, co-requisite, summer bridge, AE-ICAPS, foundational mathematics).	The Developmental Math Program offerings are sufficient and meet the needs of students across all programs. There are two pathways for students: 1. STEM, Business and Education Majors Pathway 2. Liberal Arts, Social Sciences and Fine Arts Majors Pathway The STEM, Business and Education Majors Pathway is designed for students who are pursuing a math or science degree while the Liberal Arts, Social Sciences and Fine Arts Majors Pathway is for students in majors without a heavy math focus. The courses are offered in different modalities including synchronous and asynchronous online, face-to face, FLEX,
	and hybrid. Placement testing allows for multiple entry points, so students start at the level in which they are likely to experience success. Tutoring is available daily on a walk-in basis, by appointment, and via Zoom. Also, online tutoring is available through Smarthinking 24/7. Corequisite courses provide additional scaffolding to support student learning for the transfer math courses. The companion transfer math courses are comprised of students who place directly into the transfer courses and students who place or are advised into a corequisite course, which is known as a co-mingled corequisite model.
INDICATOR 2: COST EFFECTIVENESS	***RESPONSE***
2.1 What are the costs associated with this program?	The direct costs associated with the program include: • Faculty salary and benefits (full-time and part-time) • Instructional supplies • Technology, software, and services • Publications and dues • Full-time faculty professional development The cost associated with this program is $1,949.66 per load hour which is 17.3% less than the institutional average of $2,357.79 per load hour.
2.2 How is the college paying for this program and its costs (e.g., grants, etc.)?	The College pays for this program and its costs through the general education fund.
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.	Not applicable as the program is supported by institutional funds.

2.4 Based upon this review, what steps are being taken to offer curricula more cost-effectively?	Developmental Education has a much lower program cost per load hour. We are currently practicing cost-effective measures. Inclusive Access (MyMaterials) was piloted in Fall 2019 and Spring 2020 in select developmental math courses. Due to its success and the cost savings to students, all developmental math courses now utilize Inclusive Access (MyMaterials).
2.5 Are there needs for additional resources? If so, what are they?	Additional resources would be beneficial to fund a more effective placement tool, fund more tutoring services, invest in supplemental instruction opportunities, invest in classroom technology, and fund a summer and winter bridge program.
INDICATOR 3: QUALITY	***RESPONSE***
3.1 How is the college working with high schools to reduce developmental needs?	Multiple measures are used for placement into math courses beginning Fall 2019. The following measures are used for placement: • ACT or SAT® scores • ACCUPLACER placement test scores • Next Generation (MTH) • High School GPA • GED or HiSet Scores • Placement testing at another college • Prior coursework • CLEP testing • Transitional math courses Incoming high school students also have access to the PLATO Program, which helps to prepare them for placement testing and therefore reduce the number of incoming students needing developmental courses. In addition, Transitional Math courses are being offered at area high schools which reduces the number of students needing developmental math when they matriculate to Waubonsee.

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?	At Waubonsee, the corequisite model is one of the methods used to maximize student placement and completion of a transfer math course for those students who placed in developmental math courses. The model became available to students in fall 2018 offering a corequisite course to students in Basic Statistics (MTH 107). Over the years, this model has grown to include both more sections and courses (MTH 101 College Math and MTH 109 Algebra for Business and Social Science). Students who previously placed into traditional developmental math courses are now able to enroll in a transfer math course with a support course, extending instructional time through additional lab hours. This has allowed more students the opportunity to enroll in a transfer math course and bypass developmental courses with adequate support in place, as required by the Developmental Education Reform Act. In addition, this model saves time and money for students who would've otherwise needed to take developmental courses. **Compressed Model**: Waubonsee offers several courses through the compressed model, which accelerates student progression from developmental instruction to transfer math coursework by reducing the length of a course. These courses are offered using various instructional modalities, including face-to-face, sync and asynchronous online, hybrid and FLEX, to maximize choices for students (See Addendum A). • MTH 066: Mathematics Literacy (3 Lecture) -This course focuses on solving realistic problems, gaining number sense, and improving mathematical literacy. This course was designed as an 8-week compressed course. • MTH 067: Mathematics Literacy II (3 Lecture) -This second course in Math Literacy focuses on further improving both number sense and mathematical literacy and solving realistic problems that may be modeled with linear, quadratic, or exponential equations. Designed as an 8-week compressed course.
	• MTH 050: Designed as an 8-week course but also offered in 4 and 3-week formats. • MTH 061: Designed as an 8-week course, but also offered in a 4-week format. • MTH 062: Designed as an 8-week course, but also offered in a 4-week format. • MTH 071: Designed as an 8-week course, but also offered in a 4-week format. • MTH 072: Designed as an 8-week course, but also offered in a 4-week format.

3.3 Provide a description of the developmental sequence. Colleges may attach a graphic representation.	STEM Pathway: 050 Basic Mathematics - 061 Elementary Algebra I - 062 Elementary Algebra II - 071 Intermediate Algebra I - 072 Intermediate Algebra II - 075 Elementary Geometry (if needed) Non-STEM Pathway: 050 Basic Mathematics - 066 Math Literacy I - 067 Math Literacy II – 075 Elementary Geometry (if needed)
3.4 Are there any alternative delivery methods of this program? (online, flexible-scheduling, team-teaching, accelerated, etc.)?	These courses are offered using various instructional modalities, including face-to-face, sync and asynchronous online, hybrid and FLEX, to maximize choices for students. • Acceleration: Courses are offered in 3-week, 4-week, and 8-week formats: MTH 050, MTH 061, MTH 062, MTH 071, and MTH 072. Courses offered in an 8-week format: MTH 066, MTH 067, and MTH 075. • Self-paced: The self-paced format allows students to proceed through the course at their own pace meeting certain deadlines. MTH 050, MTH 061, MTH 062, MTH 071 and MTH 072 are offered in an interactive format. This format was discontinued after Fall 2018 due to low success rates.
3.5 What innovation has been implemented or brought to this program?	Since the last program review, several innovations have been implemented in the Developmental Math Program: • Corequisite courses were first offered in Fall 2018 and are cross listed with a transfer math course. The corequisite courses provide additional scaffolding to support student learning. The corequisite courses offered are MTH 081 effective Fall 2021, MTH 087 effective Fall 2018, and MTH 089 effective Fall 2020. • In 2020, we began developing a new STEM pathway in alignment with HB-2170. MTH 068 & MTH 069 replace MTH 061, MTH 062, MTH 071, and MTH 072. The new STEM pathway has multiple entry points and reduces the time and cost required to complete the developmental STEM sequence. These courses were first offered Fall 2022. • Beginning March 2020, new modalities were implemented due to COVID-19. The new modalities are Sync Online, FLEX and Hybrid.
	• In Fall 2021, the ASPIRE Grant provided resources for developing a new math bridge program. The goal of the bridge program is to advance students through developmental math by one or more courses, reducing time to completion. The math bridge program is being piloted Summer 2023.

3.6 To what extent is the program integrated with other instructional programs and services?	The Developmental Math Program exists to equip students with requisite math skills to participate in college-level courses. As such, during the program/course development process, developmental education faculty are consulted to determine the appropriate math prerequisites. To determine student readiness for participation in college-level math, developmental faculty partner with transfer faculty to establish cut scores for the different measures used by the College. For example, faculty set cut scores for Accuplacer tests as well as ACT/SAT. The Developmental Math Program is supported by the Tutoring Centers, which provide learning assistance to all Waubonsee students including placement test preparation.
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?	Math faculty attend AMATYC, IMACC, and the National Organization for Student Success (NOSS) yearly and follow the current national and state math and developmental education discussions between conferences. Math faculty worked on reviewing the newest editions of textbooks. Also, faculty served on various advisory boards specific to our discipline and hosted a roundtable discussion.
3.8 How well are completers of developmental courses doing in related college-level courses?	Addendum B shows the student progression through developmental math for the period of 2016 - 2021. It indicates that students who started the developmental math sequence in MTH050, in either the STEM or non-STEM pathway, are least likely to succeed in college-level math courses. It is clear, therefore, that students who begin the sequence at a higher level are more likely to persist and succeed in college-level math courses. To this end, the College is exploring avenues to help students gain entry to developmental courses at a higher level.
3.9 What professional development or training is offered to instructors and/or staff to ensure quality programming?	Waubonsee has provided several options for faculty and staff professional development through Faculty Development and Engagement. Options have included face-to-face training, e-learning, job aids and one-on-one appointments with the Instructional Technologist. Topics have also included Canvas training and support, instructional design, and classroom management strategies.

	During Faculty Development Days, faculty are exposed to a variety of topics related to professional development. For example, during division meetings faculty can share/present innovative ideas or accomplishments. Guest speakers provide an array of professional development topics and opportunities. Usually topics related to technology, student engagement, persistence, success, and assessment are presented. Full-time faculty also receive professional development funds to attend discipline-specific meetings and conferences provided by outside organizations as well as take courses applicable to their field or teaching. Faculty regularly attend conferences and meetings through the National Organization for Student Success, American Mathematical Association of Two-Year Colleges, and Illinois Mathematics Association of Community Colleges. Full-time developmental math faculty attended the On-Course workshop in Spring 2022. ACUE and QM certification was achieved by faculty in developmental Math.

LIST ANY BARRIERS ENCOUNTERED WHILE IMPLEMENTING THE PROGRAM.

Placement tools are a barrier in our discipline. Students need to be placed appropriately to be successful in our courses and to take an accelerated path through developmental math.

HB-2170, which requires maximizing the probability that students will complete their first transfer math course by second semester, forced faculty to condense and omit STEM curriculum in developmental math courses. As a result, faculty predict lower success rates in the new STEM developmental math courses.

Also, faculty predict lower success rates in developmental math courses due to COVID-19.

Requiring course sections to run at full or nearly full capacity limits the number of available sections which in effect reduces enrollment.

DATA ANALYSIS FOR DEVELOPMENTAL MATH

Please complete for each course reviewed as part of the Developmental Math, Cross-Disciplinary Review. Provide the most recent 5-year longitudinal data available.

COURSE TITLE	MTH 050 – Basic Mathematical Skills				
COURSE DESCRIPTION	This course is a review of the structure and applications of arithmetic. Topics covered include the addition, subtraction, multiplication, and division of decimals and fractions.				
	2017-2018	**2018-2019**	**2019-2020**	**2020-2021**	**2021-2022**
NUMBER OF STUDENTS ENROLLED	437	479	267	140	177
CREDIT HOURS PRODUCED	874	958	534	280	354
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	74%	79%	77%	82%	46%

COURSE TITLE	MTH 061 – Elementary Algebra I				
COURSE DESCRIPTION	This course in beginning algebra covers algebraic expressions, equations, inequalities, problem solving, graphing, and polynomials.				
	2017-2018	**2018-2019**	**2019-2020**	**2020-2021**	**2021-2022**
NUMBER OF STUDENTS ENROLLED	440	381	213	123	72
CREDIT HOURS PRODUCED	880	762	426	246	144
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	73%	69%	81%	80%	74%
COURSE TITLE	MTH 062 – Elementary Algebra II				
COURSE DESCRIPTION	This continuation of beginning algebra covers polynomials, factoring, rational expressions, and rational equations.				
	2017-2018	**2018-2019**	**2019-2020**	**2020-2021**	**2021-2022**
NUMBER OF STUDENTS ENROLLED	584	470	398	306	246
CREDIT HOURS PRODUCED	1168	940	796	612	492
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	69%	74%	73%	80%	80%
COURSE TITLE	MTH 066 – Math Literacy I				
COURSE DESCRIPTION	This course focuses on solving realistic problems, gaining number sense, and improving mathematical literacy.				
	2017-2018	**2018-2019**	**2019-2020**	**2020-2021**	**2021-2022**
NUMBER OF STUDENTS ENROLLED	405	341	271	153	96
CREDIT HOURS PRODUCED	1215	1023	813	459	288
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	84%	74%	79%	81%	75%

COURSE TITLE	MTH 067 – Math Literacy II				
COURSE DESCRIPTION	This second course in Math Literacy continues to focus on solving realistic problems, further improving number sense and mathematical literacy.				
	2017-2018	**2018-2019**	**2019-2020**	**2020-2021**	**2021-2022**
NUMBER OF STUDENTS ENROLLED	363	282	234	145	84
CREDIT HOURS PRODUCED	1089	846	702	435	252
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	78%	74%	81%	81%	81%
COURSE TITLE	MTH 071 – Intermediate Algebra I				
COURSE DESCRIPTION	This course in intermediate algebra covers functions, systems of linear equations, inequalities, absolute value equations, and systems of inequalities.				
	2017-2018	**2018-2019**	**2019-2020**	**2020-2021**	**2021-2022**
NUMBER OF STUDENTS ENROLLED	614	619	696	658	663
CREDIT HOURS PRODUCED	1228	1238	1392	1364	1326
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	75%	75%	70%	67%	65%
COURSE TITLE	MTH 072 – Intermediate Algebra II				
COURSE DESCRIPTION	This course in intermediate algebra covers exponents and radicals, quadratic equations, and exponential and logarithmic functions.				
	2017-2018	**2018-2019**	**2019-2020**	**2020-2021**	**2021-2022**
NUMBER OF STUDENTS ENROLLED	608	560	529	412	387
CREDIT HOURS PRODUCED	1216	1120	1058	824	774
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING	81%	80%	81%	85%	83%

WITHDRAWALS AND AUDIT STUDENTS					
COURSE TITLE	MTH 075 – Elementary Geometry				
COURSE DESCRIPTION	This elementary geometry course covers the language of geometry, similarity, congruence, properties of points, lines, triangles, rectangles, parallelograms, squares, trapezoids, other quadrilaterals, circles, volumes, surface areas, spheres, cylinders, cones and other solids.				
	2017-2018	**2018-2019**	**2019-2020**	**2020-2021**	**2021-2022**
NUMBER OF STUDENTS ENROLLED	96	111	133	131	132
CREDIT HOURS PRODUCED	288	333	399	393	396
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	72%	65%	59%	53%	78%
COURSE TITLE	MTH 081 – Supplemental Math for College Mathematics				
COURSE DESCRIPTION	This course provides mathematical support for students in MTH 101, where students will build skills to help them successfully complete College Mathematics.				
	2017-2018	**2018-2019**	**2019-2020**	**2020-2021**	**2021-2022**
NUMBER OF STUDENTS ENROLLED	N/A	N/A	N/A	N/A	21
CREDIT HOURS PRODUCED	N/A	N/A	N/A	N/A	21
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	N/A	N/A	N/A	N/A	90%
COURSE TITLE	MTH 087 – Supplemental Math for Basic Statistics				
COURSE DESCRIPTION	This course provides mathematical support for students in MTH 107, where students will build skills to help them successfully complete Basic Statistics.				
	2017-2018	**2018-2019**	**2019-2020**	**2020-2021**	**2021-2022**
NUMBER OF STUDENTS ENROLLED	N/A	25	20	56	45

CREDIT HOURS PRODUCED	N/A	25	20	56	45
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	N/A	88%	65%	79%	78%
COURSE TITLE	MTH 089 – Supplemental Math for Algebra for Business and Social Science				
COURSE DESCRIPTION	This course provides mathematical support for students in MTH 109, where students will build skills to help them successfully complete Algebra for Business and Social Science.				
	2017-2018	**2018-2019**	**2019-2020**	**2020-2021**	**2021-2022**
NUMBER OF STUDENTS ENROLLED	N/A	N/A	N/A	6	13
CREDIT HOURS PRODUCED	N/A	N/A	N/A	6	13
SUCCESS RATE (% C OR BETTER) AT THE END OF THE COURSE, EXCLUDING WITHDRAWALS AND AUDIT STUDENTS	N/A	N/A	N/A	67%	85%

REVIEW RESULTS	
Rationale Provide a brief summary of the review findings and a rationale for any future modifications.	The data suggest that: • Developmental math enrollments peaked in 2018-2019 to 3,547 students, then saw a slow decline in 2019-2020 of 279 students, 507 students in 2020-2021, and 194 students in 2021-2022. • Credit hours generated from developmental education courses declined significantly (48%) from 2018-2022. This was most likely due to multiple measures and COVID-19. • The success rates of individual courses are relatively high. However, as students travel through the developmental education pathway to college level courses, success rates decline, especially when students start in MTH 050.

Intended Action Steps Please detail action steps to be completed in the future based on this review with a timeline and/or anticipated dates.	Summer 2023 • Bridge Program - One approach to reducing the number of students entering developmental math courses. The College is implementing a math bridge program. Students will have an opportunity to advance by one or more developmental math courses. Fall 2023 • Corequisite Remediation – Increase the number of sections of corequisite courses offered. Placement Strategy - Faculty will review current practices related to student placement including the use of alternative products and cut-scores revisions.

Student and Academic Support Services

Address all fields in the template with an equity lens. If needed, you may provide a link to support your submission. 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 these data may be attached. The review will be sent back if any of the below fields are left empty or inadequate information is provided.

College Name:	Waubonsee Community College
Academic Years Reviewed:	FY2018-FY2022
Review Area:	Academic and Career Advising
Review Team Please identify the names and titles of staff and faculty who were major participants in the review of this program/service and their role or engagement in this process.	Julie Bechtold, Academic and Career Advising Manager
Mission How does the program/service contribute to the mission of the college?	In July of 2019, the college integrated career services and resources into academic advising to provide students with a more holistic equitable experience. This effort was written into Goal 1 of the college's 3-year strategic plan.
Advancement of Equity How does the program/service help advance equity?	With the integration of academic and career advising, resources and technology were aligned to create a proactive advising model that reaches all students at Waubonsee - the vast majority of whom are first generation, financially vulnerable, academically under-prepared and/or are in another at-risk group.
Service Objectives Please provide a brief overview of the program or service being evaluated. What are the overarching goals/ objectives of the program/service?	The integrated Academic and Career Advisor role promotes an environment of being student ready. Academic and Career Advisors are being trained to support students in a blended advising model addressing both career and academic needs. **Goal 1:** Establish a proactive case management approach to advising (ideally, students work with one advisor from start to finish) to increase student retention and success. **Goal 2:** Integrate academic and career advising to ensure career development throughout the student lifespan. **Goal 3**: Develop a comprehensive advisement training strategy to strengthen the quality and consistency of advising. **Goal 4:** Strengthen communication with students and key stakeholders at the college. **Goal 5:** Optimize technology to support case management and responsiveness to academic alerts.

To what extent are these objectives being achieved? Please detail how achievement of program/service objectives is being measured or assessed?	**Goal 1: Establish a proactive case management approach to advising (ideally, students work with one advisor from start to finish) to increase student retention and success.** Goal 1 Success Indicators: • Advisors are reaching their minimum monthly outreach expectations / priorities. • Advisor caseload sizes are scaled up to reasonable (if not ideal) limits, with a student advising appointment wait time not to exceed two weeks. • Beginning with Fall 2020 cohort, Fall-to-Fall cohort retention is at least 5% higher than the prior 3-year average for college identified high-need student groups. • Beginning with Fall 2020 cohort, overall Fall-to-Fall retention is at least 2% higher than the prior 3-year average for the overall IPEDS full-time and part-time cohorts. **Goal 2: Integrate academic and career advising to ensure career development throughout the student lifespan.** Goal 2 Success Indicators: • All advisors are actively using Career Coach and/or other resources when working with students who are undecided or rethinking their academic major and career goals. • A significant and growing number (at least 100 total in FY21) of students will select "Undecided AA" or "Undecided AS" majors in Banner as the result of advising guidance and a stronger institutional process for changing one's major. • Program evaluation data will indicate student learning outcomes at or above the first-tier Career baseline identified in the 2017 counseling and advising outcomes document. **Goal 3: Develop a comprehensive training strategy for academic and career advising.** Goal 3 Success Indicators: • All advisors participate in required training and professional development sessions. If absent during a group training or meeting, the advisor makes up the training and/or obtains information shared at meetings. • Advisors consistently understand and use current tools, templates and workflows when advising students. • Advisor competency measures for academic and career advising are developed with input from advising staff. **Goal 4: Strengthen communication with key stakeholders at the college.** Goal 4 Success Indicators: • Managers from key stakeholder departments understand the philosophy and context of the redesign and the case management model. • Accurate information about advising operations/processes is shared by staff in other departments when referring students.

	• Leadership in Institutional Research and Retention/Advising areas consistently collaborate to evaluate and communicate information back to staff and students, including aggregate student evaluation data, program evaluation / learning outcome data and cohort retention analysis (measured by meetings, outcome data produced and communication of said data). • Leadership in Marketing and Communications and Retention/Advising areas consistently collaborate to strengthen student-facing communications and coordinate advisor caseload and retention outreach as a key prong in the institutional communication strategy for student retention (measured by meetings, student-facing communications produced). **Goal 5: Optimize technology to support case management and responsiveness to academic alerts.** <u>Goal 5 Success Indicators:</u> • Increased participation of classroom faculty in Academic Alert e-tools by 10% in first year and 5% during each subsequent year through Spring 2023. • Improved reporting accuracy in advising platforms (regular advisor note updates). • Reduced student confusion (questions/complaints) after the Admissions "hand off" to Advising and Retention. • Successful implementation of robust advising platform (to replace Civitas Inspire) to allow for strengthened tracking and follow-up for college identified high need students – phase one by September 2021.
Past Program Review Action What action was reported last time the program/service was reviewed?Were these actions completed? If not, what were the identified barriers to action?	Continue building partnerships with academic programs to customize career fair needs of students and improve hiring outcomes. • Partner with Adult Education and Youth Service Program for Fall 2018 Career Fair. Invite employers who offer internships, job shadowing or employment opportunities for this target population. • **Completed:** 151 attendees and 50 employers participated in the Fall 2018 Career Fair. Evaluate technology tools coming to market that meets the career management needs of the career development, Waubonsee students and employers in terms of recruiting, reporting and analytics, career education, job search preparation and management, experiential learning and event management. • Replace/upgrade career management system (job board) by AY2020. • **Not completed:** Project request and funding was denied. Refine our brand from being a transactional department to a systemic substructure that supports the entire student experience. During AY2019, the CDC will: • Explore using new tools that students and faculty can access to increase their career education knowledge. Examples include using a media platform to create "web

	shops" on resumes, job search, branding that can be posted to our webpage, uploaded to eLearning platforms, etc. We will continue to offer extra credit assignments or be a "substitute" for any missed/canceled classes. • Actively engage in program of study and program review committees to integrate career education into the curriculum through ongoing partnerships with academic and program deans. • Begin implementing case management-type model to build closer ties with our Student Success Program and the Counseling and Advising Team. Employing this model will contribute to efforts around retention and success. • **Completed:** Video tutorials on branding, cover letters, and resume building. The department actively engages in program advisory committee meetings and program of study. In Fall 2019, the college moved to case-load assignments to positively impact retention and success. In FY2022, the department engaged in a 3-year partnership with InsideTrack/CAEL to build a sustainable advising model including coaching skills into teams, process and workflows. Assessment of data on student and employer engagement to revise or improve service delivery or resource needs that align with the department, division and college goals. • Ongoing with monthly reports to Dean of Student Success and Retention, and a yearly summary to highlight strengths and identify areas for improvement. • **Completed:** because of the integration into the division of Student Success and Retention, data assessment is now completed by the Retention department within the division.
Indicator: Need	
1.1. Is this program or service statutorily required? If yes, is the college meeting the required elements? How does the college ensure it meets all required elements?	Academic and Career Advising is not a service that is statutorily required.
1.2 What is the ***need*** for this program/service and how does the institution determine ***need***?	Academic and Career Advising is critical to ensure the career development throughout the student's life cycle at the college. This ensures equity access and career preparation to achieve career and economic mobility
1.3 If applicable, what is the student usage for this program/service?	Students utilize this service when they need resources to help them meet their academic and career goals.

1.4 How does the student usage compare to assessed need of the program/service?	This is not applicable.
Indicator: Cost	
2.1 What are the current expenditures of the department?	The current expenditure for the department is $860,516.
2.2 How is this program/service funded and what cost-effective strategies are in place to ensure sustainability?	This department and service is funded by the college general education fund. The cost-effective strategy is that this department will continue to provide services to students at the lowest possible cost.
Indicator: Quality	
3.1 If applicable, how does the college program/service measure against any quality benchmark and standards?	Measurement of service quality benchmarks and standards are achieved by case management model which decreases students' self-advising and increases retention by building relationships with assigned advisors ensuring educational goals are completed without redundancy or inefficiencies in course progression.
3.2 How does the college ensurethat all staff are qualified and appropriate to overseeing or providing the program/service?	Standardized onboarding and training of staff have improved with a systematic training plan. In addition, the professional development with InsideTrack/CAEL is resulting in a baseline advising/coaching model that establishes advising priorities, objectives, and critical touch points along the student journey via proactive outreach.
3.3 What, if any, innovations have been implemented within this program/service that other colleges may want to learn about? How have these innovations had an impact on student success?	The implementation of case management model that includes an integrated academic and career advising approach. This model is also supported by a student success platform for data collection, analytics, and student performance indicators.
3.4 What are the strengths of this program or service?	**S**trengths of this service are: • Students are experiencing a lessening of frequent hand offs and advising inconsistencies when seeking support and resources. • Advising team is holistically supporting students throughout their life cycle. • Positive increases in retention with at-risk and under-served populations.

3.5 What are the challenges or weaknesses of the program/service?	Weaknesses are that caseload numbers are above the ideal number of 250 students per advisor. Most advisors are at 350+. Integration of career development into the advising model has left little resources for employer engagement and experiential learning development such as internships, etc.
3.6 What tools were utilized to determine program/service strengths and challenges? i.e., student surveys, focus groups, interviews, co-curricular assessment, etc.	Monthly Qualtrics quality surveys are sent to each student who has an appointment with their assigned advisor/counselor. Select reporting from Student Success Platform (EAB/Navigate) on student performance and advising usage.
3.7 What, if any, continuous improvement processes are in place and utilized to evaluate data and implement solutions? .	Program review is a continuous improvement process that each department undergoes. Other evaluations have been delayed due to implementing case management model during a global pandemic. During this time, we also implemented the Student Success platform. We are now just reaching a point where there is enough data to begin assessing for process improvement.
3.8 What disaggregated data was collected, measured, and evaluated to assess program/service effectiveness?	Disaggregated data is being gathered and evaluated on some student demographics for advising and retention purposes. No career services data is currently being gathered and assessed.
3.9 Were there any identifiableequity gaps in the data? Please explain.	This is not applicable.
3.10 How is the college seeking opportunities to close the gap and provide equitable access to programs and services?	Waubonsee Community College will execute five strategies specifically to improve persistence and to close the gap on completion rates. After a thorough review of institutional data; ILEA core team member discussions; and input from college faculty, staff, and students, these five strategies were selected: 1. Developmental Education Reform 2. Disaggregated Data Analysis 3. Diverse Hiring Plan 4. Latinx Student Engagement 5. African American Student Engagement
3.11 How does the program or service address inequities in instructional programs, if appropriate?	This service addresses inequities in instructional programs by scaling career services into classrooms. Professional development of advising staff to have effective career conversations with students during advising appointments.

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. Reinforce definitions about departments and roles within SSR creating KPI's for roles within the department. December 2023 2. Collaborate with campus partners to implement a robust employer partner program increasing the number of students engaged in work-based learning. Ongoing project dependent upon new presidential leadership. June 2024

	3. Implement a new career management system (job board) to increase equitable career success for students. December 2023
To what extent are action steps being implemented to address equity gaps, including racial equity gaps?	With the integration of academic and career advising, resources and technology were aligned to create a proactive advising model that reaches all students at Waubonsee - the vast majority of whom are first generation, financially vulnerable, academically under-prepared and/or are in another at-risk group.
Rationale Provide a brief summary of the review findings and a rationale for any future modifications.	The implementation of the case management, as part of the college's strategic plan, supports student success and equity by reducing barriers to services and provided intentional support to all students. As part of the plan, the integration of academic and career advising ensures career development throughout the student's lifespan at Waubonsee. Future modifications would be collaboration and resources to offer work-based learning opportunities to a majority of students.
Resources Needed	Financial support and appropriate approvals to implement new career management system (job board). Institutional initiatives to address career and economic mobility for students and become a source for talent needs within the community.
Responsibility Who is responsible for completing or implementing the modifications?	Academic and Career Advising Manager with the support of administration.

Student and Academic Support Services

Address all fields in the template with an equity lens. If needed, you may provide a link to support your submission. 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 these data may be attached. The review will be sent back if any of the below fields are left empty or inadequate information is provided.

College Name:	Waubonsee Community College
Academic Years Reviewed:	FY2018-FY2022
Review Area:	Campus Safety
Review Team Please identify the names and titles of staff and faculty who were major participants in the review of this program/service and their role or engagement in this process.	Campus Police Chief, J. C. Paez Campus Police Sergeant, Larry Wiess Campus Police Officer, Charles Yanz Campus Police Officer, Christopher Braun Administrative Specialist, Becky Hansma
Mission How does the program/service contribute to the mission of the college?	The program contributes to the College mission by providing a safe learning and working environment for students, faculty, staff and visitors.
Advancement of Equity How does the program/service help advance equity?	In addition to providing a safe environment, Campus Safety also collaborates with various on-campus student and employee groups to promote equity and ensure that everyone is afforded a safe learning and working environment. This includes efforts to address issues of discrimination, harassment, and bias, and to promote a culture of inclusion and respect for diversity. By working closely with these groups, Campus Safety can better understand and address the unique challenges faced by different members of the campus community and promote a more welcoming and supportive environment for all.
Service Objectives Please provide a brief overview of the program or service being evaluated. What are the overarching goals/ objectives of the program/service?	To provide for the safety/security for the students, faculty, staff, visitors, and college property. To provide service needs for the college community to enable students the opportunity to succeed.
To what extent are these objectives being achieved? Please detail how achievement of program/service objectives is being measured or assessed?	The achievement of these objectives is demonstrated through the submission of annual crime statistics in the Clery Report and the lack of criminal incidents on or around campus.

Past Program Review Action What action was reported last time the program/service was reviewed?Were these actions completed? If not, what were the identified barriers to action?	Since this is the first time Campus Safety is being reviewed, there were no actions reported in the previous year.
Indicator: Need	
1.1. Is this program or service statutorily required? If yes, is the college meeting the required elements? How does the college ensure it meets all required elements?	While the program is not mandatory by law, it is subject to statutory requirements under 110 ILCS 805/3-42 once implemented. Currently, all necessary components are being fulfilled, and the Campus Police Chief is responsible for overseeing the program to ensure that all requirements are met.
1.2 What is the ***need*** for this program/service and how does the institution determine ***need***?	The need for this service is to provide a safe and secure environment for students/faculty/staff and visitors.
1.3 If applicable, what is the student usage for this program/service?	Our services are continuously utilized. The most used services include conducting investigations and generating reports for incidents (such as crimes, accidents, injuries, and complaints), managing lost/found property cases, and offering assistance to motorists (such as jump-starts and unlocking cars). Additionally, we offer various general safety resources.
1.4 How does the student usage compare to assessed need of the program/service?	With more students registering for online courses, student usage has declined over the last year but remains commensurate with the assessed need of the program.
Indicator: Cost	
2.1 What are the current expenditures of the department?	Main expenditures are related to staff salaries and benefits. Total budget for the department is approximately $1.3 million.
2.2 How is this program/service funded and what cost-effective strategies are in place to ensure sustainability?	Program is funded through the general annual budget under the Liability/Protection and Settlement fund.
Indicator: Quality	

3.1 If applicable, how does the college program/service measure against any quality benchmark and standards?	Clery crime statistics for Waubonsee are equal with Elgin Community College, McHenry County College, College of Lake County and College of DuPage.
3.2 How does the college ensurethat all staff are qualified and appropriate to overseeing or providing the program/service?	Campus Police Chief is tasked with overseeing the selection, hiring, and on-going training of all personnel. Qualifications are state certification requirements and meeting the State training mandates.
3.3 What, if any, innovations have been implemented within this program/service that other colleges may want to learn about? How have these innovations had an impact on student success?	Building Emergency Response Leaders (BERLS) and the Student Worker Cadet Program are two innovations that may be of interest to other colleges. The Cadet Program has helped numerous students who have graduated from the program, and Waubonsee, in readying them for their careers in Law Enforcement/Criminal Justice.
3.4 What are the strengths of this program or service?	Major strength of this program is the experience and longevity of the officers. The eight full-time officers have more than 280 years of combined law enforcement experience.
3.5 What are the challenges or weaknesses of the program/service?	Recruiting and staffing qualified individuals have become a major challenge.
3.6 What tools were utilized to determine program/service strengths and challenges? i.e., student surveys, focus groups, interviews, co-curricular assessment, etc.	Campus Police utilizes a Strength, Weakness, Opportunities and Threats (SWOT) analysis to determine strengths and challenges.
3.7 What, if any, continuous improvement processes are in place and utilized to evaluate data and implement solutions? .	Program review is a continuous improvement process that each department undergoes every five years.
3.8 What disaggregated data was collected, measured, and evaluated to assess program/service effectiveness?	Campus crime data is collected according to the Clery Act of 1990.
3.9 Were there any identifiableequity gaps in the data? Please explain.	No

3.10 How is the college seeking opportunities to close the gap and provide equitable access to programs and services?	This is not applicable. Campus Police provides for the safety and security of all students, faculty, staff and visitors and there are no known equity gaps related to access to programs or services.
3.11 How does the program or service address inequities in instructional programs, if appropriate?	This is not applicable.

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.	Campus Safety will continue to provide a safe and secure environment for students/faculty/staff and visitors. This is ongoing.
To what extent are action steps being implemented to address equity gaps, including racial equity gaps?	The Campus Safety department offers a program where students can receive compensation while acquiring law enforcement experience. This distinctive on-campus opportunity equips students with essential mentorship and networking abilities crucial to the criminal justice sector.
Rationale Provide a brief summary of the review findings and a rationale for any future modifications.	Campus Safety will remain committed to the safety and security of students and employees.
Resources Needed	None currently.
Responsibility Who is responsible for completing or implementing the modifications?	Campus Safety and Campus Operations with the support of administration.

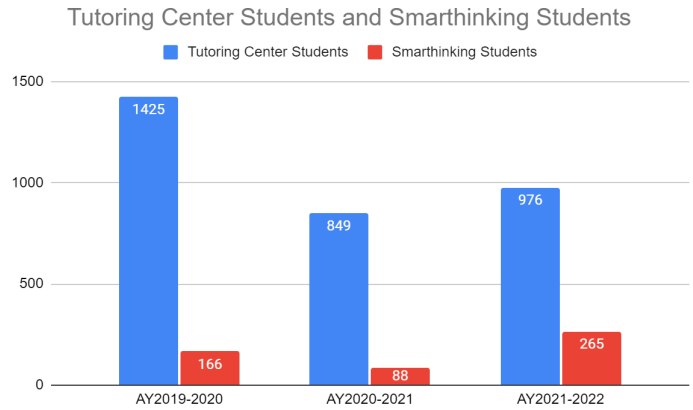
Student and Academic Support Services

Address all fields in the template with an equity lens. If needed, you may provide a link to support your submission. 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 these data may be attached. The review will be sent back if any of the below fields are left empty or inadequate information is provided.

College Name:	Waubonsee Community College
Academic Years Reviewed:	FY2018-2022
Review Area:	Academic Support – Tutoring Center
Review Team Please identify the names and titles of staff and faculty who were major participants in the review of this program/service and their role or engagement in this process.	The following staff were major participants in the review of this program: Cynthia Bowman, Academic Support Coach Jackie Chavez, Paraprofessional Tutor Christina Clark, Professional Tutor David Fennell, Professional Tutor Robert Galuski, Academic Support Coordinator Mary Mill, Lead Academic Support Coach Jessica Moreno, Dean for Academic Support Dr. Chassie Sherretz, Academic Support Manager Dr. Erin Wilhelm, Professional Tutor
Mission How does the program/service contribute to the mission of the college?	The Tutoring Center provides learning support for all students enrolled in Waubonsee Community College courses. Tutoring is a free service aimed to improve content mastery and increase academic momentum. Tutoring centers have historically been used to increase academic success in coursework. The mission of Waubonsee Community College's Tutoring Center aims to support student learning through accessible, equitable, and exceptional educational service.
Advancement of Equity How does the program/service help advance equity?	The Waubonsee Community College Tutoring Center addresses and helps advance equity by removing various barriers to success and increasing access to Academic Support services. The Tutoring Center advances equity through its flexible delivery of service using multiple modalities for access. Students can meet with tutors and academic coaches online, over Live Chat, virtually, or in-person. The Tutoring Center also provides 24/7 online tutoring, using Smarthinking, to cover any gaps in hours and subjects. In a post-pandemic environment, there is an increasing need for support services outside of the classroom, as many students are attending college with knowledge gaps. Tutoring helps to target those areas, and it guides students through a self-discovery process of understanding. The Tutoring Center welcomes everyone and is free of charge to students as services are included through student fees. This eliminates an economical barrier, as some college students can afford private tutoring, while others cannot.

	The Tutoring Center utilizes many different styles of tutoring to meet a student at their level. Tutors and academic coaches are trained in different learning preferences, and, therefore, they go into each session with a wide array of approaches to best serve the student while adhering to the curriculum design by instructors. To increase access and advance equity the Tutoring Center has focused on the following initiatives: ● Accuracy of data collection to determine any gaps in services and student groups. ● Peer-to-peer learning assistance. ● Intentional hiring based on needs and gaps- There is an intentional look at the hiring practices within the Tutoring Center to create a space reflective of the students enrolled at Waubonsee Community College. As such, the Tutoring Center offers bilingual tutors and academic coaches. The Tutoring Center also employs tutors and academic coaches with similar situations to the students enrolled, such as being a first-generation college student.
Service Objectives Please provide a brief overview of the program or service being evaluated. What are the overarching goals/ objectives of the program/service?	The Waubonsee Tutoring Centers offer support and assistance to Waubonsee students in more than 20 different subjects, 200 individual courses, as well as executive functioning skills. The Tutoring Centers assist students through peer, paraprofessional, professional tutors, and academic coaches. The goal and primary purpose of the Tutoring Centers are to enhance student academic wellness and performance. The Tutoring Center offers several modalities for meeting with a tutor or academic coach. The center is open at the Sugar Grove and Aurora Downtown locations from 9 a.m. to 3 p.m., Monday through Thursday. Tutors and coaches are available via drop-in, in-person appointments, or virtual appointments. In addition, students can take advantage of the 24/7 online tutoring services through Smarthinking. Overarching department goals are as follows: 1. Increase student engagement in the learning process utilizing various techniques and strategies, fostering academic improvement and greater understanding in tutored courses. 2. Deliver services that uphold high academic standards, empowering students to become active, and interdependent learners. 3. Create a safe, comfortable, and welcoming environment (Online and in person) that supports faculty instruction and student-active learning. To achieve these goals, the following measures and facets of the Tutoring Center are implemented: ● Traditional Tutoring: Tutors, who are experts in their fields, provide guidance in their subject matter and aid students with assignments, essays, and study skills.

	Tutors have a wide range of skills and can assist in a variety of subjects. Other assistance might include reviewing class material, discussing text, reviewing test questions, generating ideas for papers, or working on solutions to problems. Tutors help students deconstruct challenging concepts into manageable pieces, building on the curriculum set forth by the instructor. ● Peer Tutoring: Peer Tutors are Waubonsee students who have excelled in their courses. They provide course-specific tutoring to students, while also role modeling successful learning strategies. Peer tutors are relatable to the students because they may have faced the same challenges and offer an empathetic outlook on the same academic issues. Finally, the experience as a peer tutor provides an opportunity for growth and exploration into fields such as education. ● Embedded Services: Embedded services include tutors and academic coaches, whose focus is to provide more individualized attention and assistance during class activities, and to motivate students' participation and engagement in a classroom setting. Under the instructors' guidance, the embedded academic coach functions as a mentor and a model for successful academic strategies and habits. ● Supplemental Instruction (SI): Supplemental Instruction is a nontraditional form of tutoring that focuses on collaboration, group study, and interaction for assisting students in undertaking "traditionally difficult" courses. Through 50-minute SI sessions, students are provided with course-specific learning and study strategies, note taking and test-taking skills, as well as the opportunity for a structured study time with peers. ● Academic Coaching: Academic Support Coaches in the Tutoring Centers help students stay engaged in their learning by providing strategies to help students become self-regulated learners. These strategies include test-taking skills, time management, and organizational skills. ● Test Preparation: Test preparation is offered to students in a multitude of areas. Students can work to increase their Accuplacer Placement Exam scores, study for the HSE and TEAS exams. Students bring questions relating to math, science, and reading to tutors for subject-specific assistance. ● Special Events: Special events have been created to help with student engagement and academic wellness, with a focus on midterms and final exams and essays. Some examples of these special events include workshops that focus on subjects and concepts, executive functioning

	skills, and general outreach to raise awareness and establish relationships with students and campus departments.
To what extent are these objectives being achieved? Please detail how achievement of program/service objectives is being measured or assessed?	The goals of the Tutoring Center serve as a guide for strategic planning, budget management, and daily operations. The Tutoring Center is consistently evaluating student needs and gaps in services by tracking student traffic, subject areas, peak times, and usage of different modalities. A continuous quality improvement model follows the plan-do-check-act regimen and provides feedback to respond to student needs. Data collection includes institutional and department surveys, focus groups for students, listening sessions for faculty and feedback from staff. In addition, this department has worked on several projects and initiatives all which are related to the goals and have helped advance the work. **Flexible delivery model (Goals 1, 2 & 3)** The Tutoring Center's 24/7 flexible delivery model caters to all student needs and demands through the current in-person and virtual tutoring and academic coaching, which is available in-person and virtually from 9 a.m. to 3 p.m., Monday through Thursday, and by virtual appointment outside of those hours. Smarthinking is used to supplement hours and subjects not covered by Tutoring Center staff. The shorter hours of operation resulted in fewer gaps of subject areas for students due to an increase in flexible hours for students. Results: Preliminary results have shown an increase in student usage of services due to its convenience, availability, and accessibility. There was an increase of students using our tutors as opposed to Smarthinking (online tutoring service). Table1: Tutoring Center Students and Smarthinking Students  Table 2: Comparison of Modalities, 2018-2022

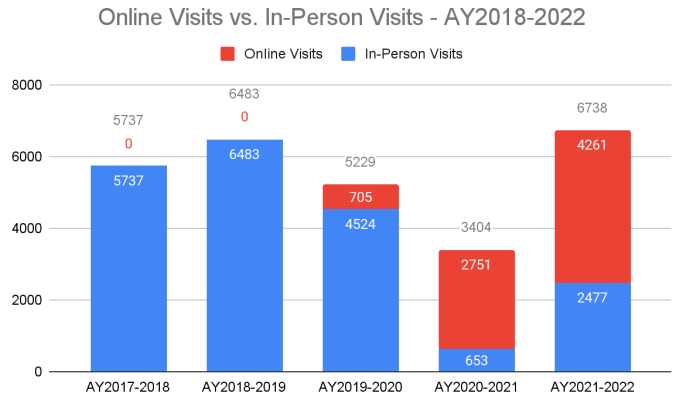


Table 2 shows the number of students who visited the Tutoring Center in-person versus online since Summer 2018. Online visitations took off after COVID-19, which is why Summer 2018-Fall 2019 have no sessions shown. However, as more classes are offered in a face-to-face modality, the more students come to in-person sessions at the Tutoring Center.

NTA Training (Goal 2)
The Academic Support Coordinator and Lead Academic Support Coach are currently certified by the National Tutoring Association (NTA). The NTA's training and certification program focuses on brain-based learning, exploration of ideas, and creating a holistic dialogue. Tutors and academic coaches who are certified under this have hands-on experience in interpersonal skills, executive functioning, and guided learning experiences. The NTA's training gives tutors and academic coaches the opportunity to apply different strategies on engaging student learning.

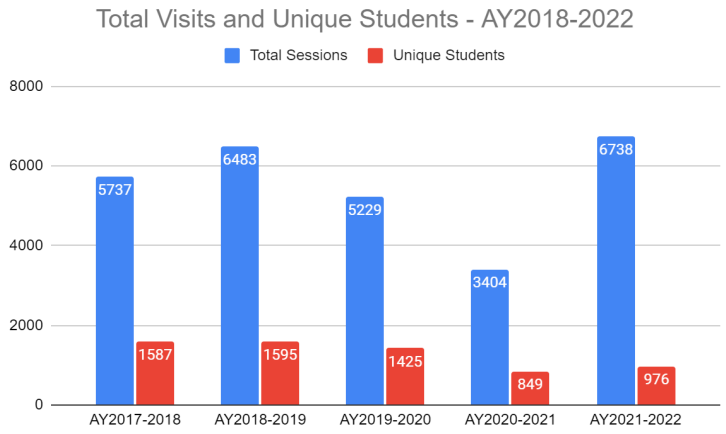
Results: Preliminary data have shown more tutors using this method while tutoring students and engaging in a reflective process which has led to an improvement of tutoring sessions.

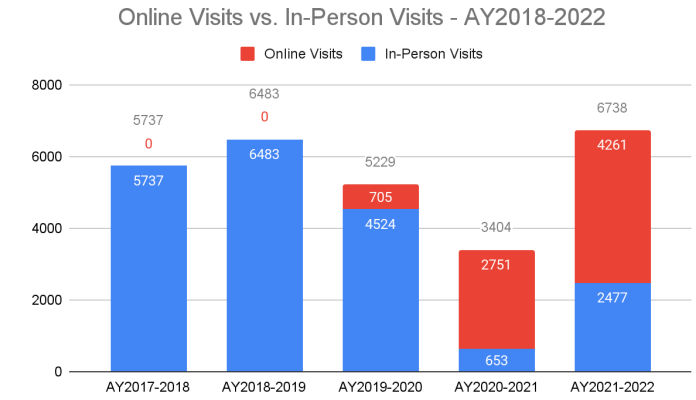
Data collection and feedback (Goals 1, 2 & 3)
An increased awareness of services has also led to a new focus on data collection to determine the effectiveness of services.

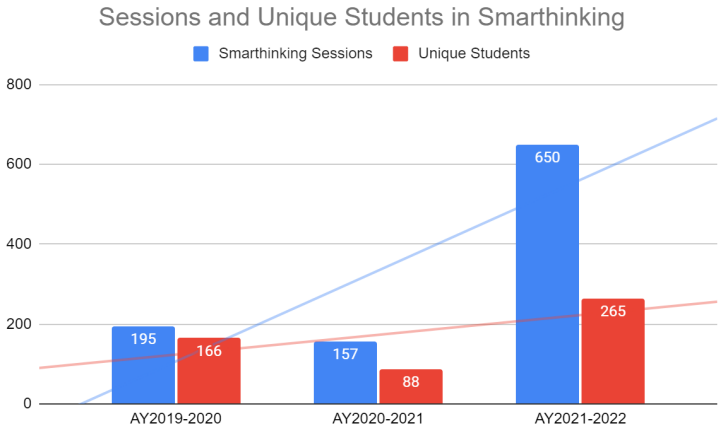
- Collaboration with faculty: The Tutoring Center collaborates with faculty to ensure the methods being worked on reflect the faculty member's curriculum.
  Results: The faculty partnership has proven to be an essential component of the Tutoring Center operations. Students are more receptive to faculty recommendations, as it takes away the indecision of attending tutoring. The faculty's support enables the Tutoring Center to serve more students.
- Retention Data: Recently, the Tutoring Center began to review retention data on students who attend tutoring and academic coaching sessions to ensure they have enrolled again in the following semester.
  Results: Student retention data has informed the growth of the peer-to-peer learning assistance program while also acknowledging the challenges of a two-year college.
- Student Feedback: The Tutoring Center utilizes student feedback to assess the effectiveness of the program. This

feedback informs the Tutoring Center as to how the student views their own progress with the assistance of the Tutoring Center. Feedback has been collected both post-session and at the end of the semester. Examples of student feedback include the following:

- From a former student: “Just wanted to say thank you so much for helping me through all my math courses. Your patience and understanding with me was a true blessing and I couldn't have done this without you. I graduate this Saturday at NIU with a Bachelor of Health Science and just wanted to thank you for being such a big part of my accomplishment. Thank you.”
- “[Tutoring] has honestly made me a better writer, especially when writing APA assignments. When I took a CRJ class in 2018, Tutoring for assignments was not required, and I failed. So, I really do appreciate it!”
- “Coming to Waubonsee Community College for close to four years I have battled with GED Math three times, and I have failed. A colleague in the class asked me to go to the 2nd floor for special tutoring when I was about to give up. I gave it a try and was introduced to a [tutor]. She took me in math from the scratch, with the confidence and thorough coaching she gave me in Math, I put in for GED the fourth time and alas! I passed. Thank you Waubonsee, thank you!”
- "I was once a Waubonsee Community College student walking past the Tutoring Center thinking I didn't need help with coursework. However, since working with multiple tutors for math, writing, and American Government, I realize I can pass any class with confidence. The added help of the dedicated tutors in the Tutoring Center has led to my continued academic success at Waubonsee Community College."
- “I am writing to acknowledge and thank [tutor] for his outstanding tutoring. I had the amazing opportunity to work with [him] throughout this summer/2021 semester. The class that I was enrolled in was CIS 110.920 - Business Information Systems, online (only), and it was the first class I have taken at WCC for academic credit, as well as my first online class. I have a four-year degree from another university and enrolled in this class to update some skills. [He] and I had several zoom meetings, and they were all absolutely fantastic. At first, I was so overwhelmed and was having difficulty determining how to navigate through the course and SIMnet (McGraw Hill) system. In our first zoom session, [he] was so patient and provided so much guidance and knowledge to get me on

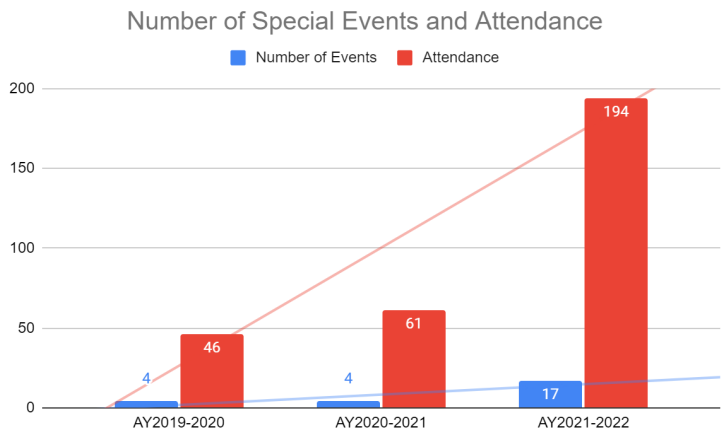
	board with the system and assisted me with my first (Excel) assignment. [He] thoroughly explained what we were doing and answered many questions. As we continued with our zoom meetings for the Excel portion of the course, his knowledge, guidance, assistance, support, patience, and kindness were top notch. [He] taught me so much about Excel, my lap-top computer, some incredible shortcuts, and skills, and how to be kind to myself. [He] is a tremendous asset to your team. Results: Student feedback has led to offering more support in subjects students expressed higher interests in. To this point, the Tutoring Center increased its number of Computer Information Systems (CIS) tutors in response to an increase in student need that was expressed in quantitative and qualitative data.
Past Program Review Action What action was reported last time the program/service was reviewed? Were these actions completed? If not, what were the identified barriers to action?	During the FY18 program review, the following actions were reported: **Summary:** 1. Increase the number of students serviced by the Tutoring Centers (Sugar Grove, Downtown, Fox Valley, and Plano) by 2%. This goal will be measured through accurate data collection and monthly reports from all centers. The Academic Support Manager will continue to work with faculty and tutors to develop proactive institutional initiatives that measurably affect student preparedness and success. **Results:** The goal was met. The Tutoring Center increased its student participation during 2018-2020. However, there was a decrease in student attendance during the COVID-19 pandemic. In response, as the Tutoring Center adapted into a virtual space as well as a physical space, the number of students attending tutoring and academic coaching sessions began growing to pre-pandemic numbers. 





2. Increase the visibility of tutoring services at all campuses using marketing techniques, classroom visits, participation in special events such as orientation, Waubonsee open house(s) and first look. This goal will be measured through accurate data collection of all efforts.

Results:
Goal number 2 was met. In the last five years, the Tutoring Center has undergone a strategic and aggressive marketing campaign to raise awareness. This includes being present at events such as the Welcome Tents, New Student Orientation, Leadership Summit, Faculty Development Days, and hosting different Tutoring Center-related special events.



3. Expand Supplemental Instruction offering for historically difficult courses by 2% by Fall 2019. The Academic Support Manager will continue to work with faculty and Supplemental instruction leaders to offer SI sessions for historically difficult courses.

Results:
Goal number 3 was also met, although this service was also stalled due to the COVID-19 pandemic. In 2018, there were two Supplemental Instruction Leaders. Currently, the Tutoring Center has one official SI Leader, with an additional four more being trained for a total of 5 SI Leaders.

Indicator: Need

1.1. Is this program or service statutorily required? If yes, is the college meeting the required elements? How does the college ensure it meets all required elements?	Although this service is not statutorily required, it has become fundamental to colleges and universities, as many have looked to Tutoring Centers as a solution to combat learning loss experienced during the COVID-19 pandemic. Faculty have been instrumental in informing students about the benefits of utilizing this service. It is also included in student fees and, therefore, no additional cost is expected from the students. The Academic Support Division and its departments strive to support the Educational Affairs Plan and the Strategic Plan to remove barriers to student success and degree completion.
1.2 What is the ***need*** for this program/service and how does the institution determine ***need***?	In the last five years, the Tutoring Center has played an essential role in helping students become self-regulated learners, better understand the course material, and improve executive functioning skills. The goal of the college is to reduce time to completion and increase educational attainment. The Tutoring Centers have been used as a solution to address disparities in student learning and learning loss that rose out of the pandemic and provide educational equity for all.
1.3 If applicable, what is the student usage for this program/service?	Data for Tutoring Center usage in the last five years: In 2018, the Tutoring Center saw **1,587** unique students in subject tutoring and academic coaching, or **15.96%** of the students enrolled at Waubonsee. In 2019, the Tutoring Center saw **1,595** unique students in subject tutoring and academic coaching, or **16.87%** of the students enrolled at Waubonsee.

	In 2020, the Tutoring Center saw **1,425** unique students in subject tutoring and academic coaching, or **15.58%** of the students enrolled at Waubonsee. In 2021, the Tutoring Center saw **849** unique students in subject tutoring and academic coaching, or **11.2%** of the students enrolled at Waubonsee. In 2022, the Tutoring Center saw **976** unique students in subject tutoring and academic coaching, or **12.62%** of the students enrolled at Waubonsee.
1.4 How does the student usage compare to assessed need of the program/service?	The college relies on the data collected by the center to determine need and direction to continue supporting students and academic momentum. Before the COVID-19 pandemic, the Tutoring Center's daily operations were limited to only in-person sessions in physical spaces. While that worked for some students, the pandemic forced a new delivery model that has proven to work for most. The Tutoring Center's flexible delivery model increases our accessibility for students to use when they need the service and makes it possible for faculty to promote our 24/7 services. As findings of student surveys and website traffic suggested, students tend to engage with homework assignments after business hours (10 p.m. to 2 a.m.). Currently, the focus has become embedded services in learning management systems to eliminate wayfinding and entering a new physical space, which some students can find intimidating. In addition, there are efforts to increase marketing of services to underrepresented populations to attract those students.
Indicator: Cost	
2.1 What are the current expenditures of the department?	The major expenditure of the Tutoring Center continues to be salaries for staff. When including salaries, insurance, and institutional materials such as technology, printing, and travel, the following budget is listed: Salaries: $ 396,344 Federal Work Study Match: $700 Student Workers: $14,612 Medical Insurance: $26,103 Dental Insurance: $580 Life Insurance: $60 Salary Protection: $50 Employee Assistance Program: $735 Medicare: $4,914 Course Reimbursement: $125 CIP Health Insurance Match: $303 Technology Maintenance and Support: $1,000 Office Supplies: $1,000 Managed Print Services: $1,141 Technology Software and Services: $31,300 Publications and Dues: $150

	Minor Technology Equipment $2,800 Conference and Meeting Expenses: $850 In-State Travel: $500 Out-of-State Travel: $3,000 Staff Development: $1,255 Total **$472,271**
2.2 How is this program/service funded and what cost-effective strategies are in place to ensure sustainability?	The Tutoring Center is funded from the general education fund. The fiscal year ends on June 30 and begins the next fiscal year on July 1. Our cost-effective strategies include the following: ● Tutoring by appointment ● Hiring staff who have a high breadth of skill to maximize the number of students they serve ● Staffing based on data (usage projections) ● Data-informed schedule ● Staggered schedules for Tutoring Center part-time staff ● Budget planning related to supplies, trainings, and meetings ● Partnering with faculty to hire peer tutors ● Group tutoring Annually, the leadership re-evaluates these strategies by using Tutoring Center data.
Indicator: Quality	
3.1 If applicable, how does the college program/service measure against any quality benchmark and standards?	The Tutoring Center sets internal benchmarks based on internal data and feedback from constituents. The National Tutoring Association (NTA) helps determine professional standards for tutors and administrators of tutoring programs and services. The Tutoring Center used the NTA as an integral part of the center's professional training. Through the professional training, staff can utilize the NTA's training protocols to create a unique learning environment. Every student receives a short survey asking about their experience in the center (virtual or in person) and their experience and satisfaction with the services (Academic Coaching or Tutoring). This office also reviews institutional student surveys, focus group data, and faculty and staff feedback to evaluate its performance and effectiveness during an annual reflection process.
3.2 How does the college ensure that all staff are qualified and appropriate to overseeing or providing the program/service?	There are currently three levels of tutors at the Waubonsee Tutoring Center: Professional, Paraprofessional, and Peer. ● Professional tutors have a master's degree or doctorate. ● Paraprofessionals have an associate degree or bachelor's degree. ● Peer tutors are students currently enrolled in good academic standing at Waubonsee. During the hiring process, all applicants are screened to ensure they meet the minimum qualifications, which includes proficiency in subject area of expertise, basic computer skills, effective communication skills, and the ability to develop interpersonal relationships with students, faculty, and all other

	Tutoring Center stakeholders. Special consideration is given to tutors with a wide range of experience tutoring various subject areas and tutors with a teaching background. Academic coaches have advanced degrees in education, advising, and counseling, or they have extensive experience in the college-setting. Our academic coaches, because of this diverse background, can meet students at their levels and offer a variety of strategies to students. **Professional Development** To maintain high professional standards and relevant service to students, professional development has been implemented at several levels. ● In 2018, the Tutoring Center Manager and Assistant Dean attended a Supplemental Instruction training at the University of Cincinnati. ● In 2020, the Academic Support Coordinator and several tutors completed online National Tutor Association training to increase consistency across the various campuses. ● The NTA's training and certification program focuses on brain-based learning, exploration of ideas, and creating a holistic dialogue. Tutors and academic coaches who are certified under this have hands-on experience in interpersonal skills, executive functioning, and guided learning experiences. The NTA's training gives tutors and academic coaches the opportunity to apply different strategies on engaging student learning. ● In 2022, the Academic Support Coordinator completed a three-day training as a method to increase retention and create a student-centered environment in the Tutoring Centers. ● In 2023, the Academic Support Coordinator and Lead Academic Support Coach completed the certification from the NTA "Train the Trainer" course to deliver high-quality training to tutors and coaches to continue to provide consistent service across all modalities and campuses.
3.3 What, if any, innovations have been implemented within this program/service that other colleges may want to learn about? How have these innovations had an impact on student success?	**Data Refinement, Analysis, and Exploration:** In the last five years, a greater emphasis has been put on data entry collections and processes in the Tutoring Centers. Historically, the data collected is used to inform hours of operation, tutor support for courses, and to gauge satisfaction about Tutoring Center services. In 2021, an internal data team was formed to increase the reliability and credibility of the data collected, while maintaining its integrity. This data team was born out of a need to collect information on the expanded services implemented during and after the COVID-19 pandemic. The data team has created a robust data collection process for all the services, which is vital to strategic planning. The following strategies have been implemented to better use data:

- Staff accurately document services (tutoring and coaching), modalities, and session duration, utilizing the tracking software called TutorTrac.
- Weekly reports are created to measure success of Tutoring Center services and to identify timely interventions and adjustments if needed.
- Tutoring Center staff are kept informed of the data being collected each week as a method for evaluating Tutoring Center success.
- Information is shared college-wide to create transparency.

The data that is now collected is used to directly inform decisions to better help students. The subjects offered, the tutors available, and the special events created all come from more reliable data, which gives students more opportunities to succeed by having the subjects they need, having tutors available when they are, and targeting high-struggling areas to present to them.

Refocus During the Pandemic
The COVID-19 pandemic brought significant changes to the daily operations of the Tutoring Centers, whose operations were limited to only in-person sessions in physical spaces. Although those changes were challenging, many of them have proven to provide better access and flexibility for our students.

In the beginning of 2019, a small pilot program was launched that included in-person appointments for math and writing only. The pandemic provided a vehicle to expand this project at an accelerated pace for all subject areas and in various modalities, such as Zoom and in-person. This flexible delivery model has continued due to its popularity and student demand after the pandemic.

With the demand for increased flexibility, the Tutoring Center hours were modified to respond to student needs and provide service across all seven days of the week. The Tutoring Center staff were made available virtually during hours that were most accessible for students while supplementing any hours not covered by staff through Smarthinking (online tutoring service).

Collaboration
In response to data collection and faculty listening sessions, intentional efforts were made to increase collaboration across the college. The efforts were aimed to raise awareness, build trust, and create partnerships with all college stakeholders—in particular, faculty. The faculty partnership has proven to be an essential component of the Tutoring Center operations. Students are more receptive to faculty recommendations. The faculty's support enables the Tutoring Center to serve more students, and together the partnership strengthens student success.

Focus on Student-Centered Design

	During the last five years, the Tutoring Center has had the opportunity to design its services, keeping the diverse student population served by the college at the forefront of its decision-making process. Therefore, a variety of data collection efforts were made to better understand the needs of our students. Students expressed a need for flexibility, the need for support in other subject areas previously not offered, and special events focusing on concepts learned in the classroom. In response to student and faculty feedback, Academic Support workshops were created related to tutoring. These included: ● Waubonsee WINsdays ● S.M.A.R.T. (Students Maximizing Academic Resources and Training) ● Write All Night ● Writing Workshops ● Math Finals Survival/It's Not Too Late to Calculate ● Anatomy & Physiology Review Workshops
3.4 What are the strengths of this program or service?	**Flexible Delivery Model:** The Tutoring Center's 24/7 flexible delivery model caters to all student needs and demands through the current in-person and virtual tutoring and academic coaching. **Data Collection and Analysis:** The Tutoring Center formed an internal data collection team in 2021 to analyze the traffic in the Centers and implement effective changes based on those data trends. The data collection is used to inform decisions in the Tutoring Center, including scheduling, the hiring of tutors for specific subjects, special events, and how the Tutoring Center allocates and disburses resources. **Certification:** The NTA's training provides tutors and academic coaches different strategies on engaging student learning and maximizing their time with students during a session. Using the techniques learned from the NTA training, tutors and academic coaches understand how to flexibly handle multiple students at once. This allows students to spend more time within the Tutoring Center, engaging with the material, as the tutor or academic coach works with other students. **Diverse Tutor/Coach Background:** Tutors' and coaches' educational backgrounds range from associate degree to doctoral degrees in various fields. In addition, some of the tutors are current or former faculty members, either at different institutions or at Waubonsee. Peer tutors are exceptional students at Waubonsee and currently in good academic standing. Intentional steps are also taken in the hiring process to ensure that the Tutoring Center is a space reflective of the population of students served at Waubonsee Community College. This has afforded the Tutoring Center the opportunity to better understand and meet the needs of the various populations by offering strategies that make sense to the holistic student, rather than a one-size-fits-all approach.

	Growth To meet the demands of students, the Tutoring Center has also undergone significant growth. ● Since the last program review, the Tutoring Center has been intentional in growing the peer-to-peer learning assistance program. Currently, there are four peer mentors, two SI's, and five peer tutors. ● Six additional academic coaches were hired to help students with executive functioning skills. This was a need brought on by the COVID-19 pandemic. Each of the academic coaches have their own specialties or populations of students served. Specialties include developmental education, adult education, HSE/ELL, Career and Technical Education, QuickPath (an accelerated degree program), Access Center for Disability Services, Athletics, and Math Bridge. ● In 2022, a full-time Lead Academic Support Coach was hired to increase visibility for academic coaches, increase partnership and collaborations with faculty across the college, and support student success and academic wellness. ● Since the last program review, the hiring of additional tutors in subjects such as math, writing, chemistry, and computer information systems was needed to also meet the growing demands of students. **Faculty and Overall College Collaboration** Relationships with faculty have continued to develop, and faculty voices are included in decisions for the Tutoring Center. The Tutoring Center has also worked closely with marketing to create new campaigns aimed at bringing more students into the Tutoring Centers. The Tutoring Center also collaborates with Academic and Career Advising to receive all Early Alert referrals as a retention tool to respond to student needs more directly.
3.5 What are the challenges or weaknesses of the program/service?	While the Tutoring Center offers varied opportunities for students, there have been challenges during the last five years, such as: **Leadership Turnover:** During the past five years, the various changes in leadership have presented challenges and setbacks for the Tutoring Center. Although the Tutoring Center has made significant progress, more could have been accomplished with consistent leadership in the Tutoring Center. **Recruit, Retain, and Engage Workforce:** The Tutoring Centers continue to be challenged in recruiting, retaining, and engaging the tutors and coaches. The Tutoring Center has an opportunity to evaluate how it balances prioritizing the needs to serve the students with the needs of the staff to ensure the engagement of talented staff.

	Recruitment and Retainment of Peer Tutors: Empirical evidence points to the significant increase of student engagement in material when tutored by a peer. It also reinforces the learning cycle for the peer tutor as well. Unfortunately, the Waubonsee Tutoring Center struggles in recruitment and retention of peer tutors. There have been strides made in bringing in more peer tutors, including raising awareness. However, due to Waubonsee being a two-year institution, there is a natural turnover of peer tutors. The Tutoring Center also faces the issue of a competitive job market outside of Waubonsee. **Adopting a Flexible Mindset** While the COVID-19 pandemic had the Tutoring Center turn to a more flexible delivery service, the service was challenging in several ways. One challenge was transforming a physical service space to an online delivery service. In relation to that, another challenge was training tutors to be more flexible and empowering them to be more agile during the tutoring sessions. It pushed the Tutoring Center staff to adjust their mindset on how students are served and align with best practices of tutoring.
3.6 What tools were utilized to determine program/service strengths and challenges? i.e., student surveys, focus groups, interviews, co-curricular assessment, etc.	The tools that were utilized to determine the Tutoring Center's strengths and challenges were: ● Monthly Priority Meetings with the Executive Dean for Academic Support and the Academic Support Leadership team. ● Employee engagement data through surveys is analyzed and changes implemented based on their suggestions. ● Student-centered surveys to incorporate student voice into the decisions of the Tutoring Center. ● Periodic focus groups gauge student perceptions of the Tutoring Center and the staff. ● Faculty listening sessions aimed to promote dialogue between the faculty and the Tutoring Center. ● Yearly strengths, weaknesses, opportunities, and threats (SWOT) analysis to evaluate strengths and challenges. ● Weekly Tutoring Center Utilization Reports of Tutors and Academic Coaches. ● Weekly Academic Support Leadership Huddles, bi-weekly Academic Support Coach meetings, and Tutoring Center Friday Meetings.
3.7 What, if any, continuous improvement processes are in place and utilized to evaluate data and implement solutions? .	The weekly and end of semester utilization reports are reviewed by the Academic Support Manager and the Academic Support Coordinator to address any opportunities and to adjust based on the data recommendations. Yearly SWOT documentation and reflection opportunities exist to evaluate the effectiveness of the Center. In addition, the Tutoring Center follows the College's program review process to assess the impact and quality of this department.
3.8 What disaggregated data was collected, measured, and evaluated to assess program/service effectiveness?	The following data was collected to measure and evaluate the Tutoring Center's effectiveness: ● Weekly Tutoring Center utilization report (TutorTrac) ● Weekly Academic Support report

	● CTE Coach data for Business Technical and Workforce Education ● Annual effectiveness of the Tutoring Center review ● Student Surveys (institutional, tutoring, coach, workshops) ● Live Chat survey data ● Weekly Phone Queue data
3.9 Were there any identifiable equity gaps in the data? Please explain.	Waubonsee Community College's Illinois Equity in Attainment Initiative Equity Plan identifies the goal of closing gaps such as academic success and degree attainment for first generation, limited-income, African American, and Latinx students. The Tutoring Center noticed equity gaps and opportunities in the following areas: ● Latinx and African American students ● Developmental Education Students ● Adult Education students (HSE, ELL) ● Dual Credit and High School students ● Tutoring in DWFI courses ● More bilingual staff needed The Tutoring Center will continue to examine and collect data to better understand the needs of these student populations and determine a best course of action. It is important to build relationships with underrepresented students and staff and continue to work to provide an equitable academic experience.
3.10 How is the college seeking opportunities to close the gap and provide equitable access to programs and services?	Since 2022, the Senior Diversity, Equity and Inclusion Coordinator has been a part of the Academic Support Division. This has allowed a more collaborative dialogue with the Tutoring Center and DEI on creating a more equitable space for students, faculty, and staff. In addition, effort towards hiring a more diverse staff that resembles the student population served is in action.
3.11 How does the program or service address inequities in instructional programs, if appropriate?	Tutoring Center staff collaborate and partner with faculty to support student success. Tutoring and coaching sessions focus on the individual student, and, therefore, the learning preferences the student has is at the forefront. Tutors and academic coaches can address inequities in instructional programs with the help of faculty, as tutors and academic coaches can tailor individual sessions to the individual student's needs. Consequently, partnerships with academic programs have been created to better prepare students (test preparation) for various standardized tests required by some instructional programs. The Tutoring Center staff also collaborates with other departments, such as TRIO and the Access Center for Disability Services to address any inequities a student may experience in the classroom. The tutors and academic coaches work with these departments to ensure a smooth and cohesive transition from one department to the next.
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.	In the next five years, the focus of the Tutoring Center will include training, offering support for high DFWI courses, and exploring underserved populations of students with the goal of supporting retention and degree completion. **1. Increased Professional Development** In the next five years, the Tutoring Center will need to continue to prioritize training to provide consistent and high-quality service across all modalities and campuses. With the Academic Support Coordinator and the Lead Academic Support Coach trained in the NTA's "Train the Trainer" course, there will be more professional development opportunities for tutors and coaches. This includes a focus on brain-based and student-centered learning. Professional development opportunities in line with these areas will provide tutors and coaches with strategies and understanding of how to engage students more efficiently and effectively. Cost-effective resources for individual subject and specialty strategies will also be provided to tutors and coaches. In the next five years, all tutors and coaches will be trained using NTA standards. This training model will also become part of the onboarding process for new staff. **2. Increased Support for High DFWI Courses** The Tutoring Center will increase by at least 2% the support for students enrolled in historically high DFWI courses. This increase will include the following services: ● More embedded tutors and coaches in the courses ● Supplemental Instruction for those courses ● Special events targeted at students in these courses **3. Increased Support for Targeted Student Populations** In the next five years, the Tutoring Center will explore the populations that have gone unserved. Through this exploration, the Tutoring Center will understand which populations of students need better awareness and work with other departments on campus to raise that awareness. A greater emphasis will be placed in including these students at the forefront of the annual strategic planning. ● In the next five years, the Tutoring Center will serve 3% more Developmental Education students and African-American and Latinx students.
To what extent are action steps being implemented to address equity gaps, including racial equity gaps?	The Tutoring Center enacts several strategies to address equity gaps, including racial equity gaps. These strategies include enhanced training in two different areas: **On Course:** The On Course training workshops are 1 or 3-day learner-centered professional development events that provide staff with innovative strategies to empower students to become active, responsible, and successful learners improving student academic success and retention. **NTA:** The Tutoring Center uses the National Tutoring Association (NTA) curriculum as a benchmark for quality tutoring and academic coaching. Through this training, tutors and coaches learn about biases and how to work with special populations of students as well as marginalized groups of students. Part of the training centers on bridging the equity gap by tailoring tutoring and coaching sessions to the individual student, rather than using a one-size-fits-all approach. This is accomplished through identifying

	learning preferences, understanding prior knowledge, and utilizing already existing learning strategies. Furthermore, the Tutoring Center engages in a detailed analysis of disaggregated data to better understand the makeup of the students served by the Tutoring Centers. This breakdown of data helps the Tutoring Center identify which populations of students are being underserved. Then, in strategy sessions, new methods and ideas are presented and implemented to connect those students with the Tutoring Center. The actions listed above will increase the quality of service across various modalities and campuses for all students.
Rationale Provide a brief summary of the review findings and a rationale for any future modifications.	The Waubonsee Tutoring Center has seen growth and change in several different areas in the past five years. As the Tutoring Center worked to adjust not only to the COVID-19 pandemic, but also to a post-pandemic environment, there was recognition of the need for other avenues of support for students. The Tutoring Center adapted a flexible delivery model which allowed Tutoring Center staff to meet students at their level. Along with this model, tutors and academic coaches have increased the services offered with special events. In addition to the post-pandemic adjustments, the Tutoring Center continues to be intentional in its collection, analysis, and response to data, making informed decisions based on it. Even though the Tutoring Center has made historic strides in service to students by delivering a flexible model, offering an expansive number of courses, and bringing new, innovative ideas to engage students, there are always opportunities for improvement. The Tutoring Center will evaluate the challenges presented, including the following: ● An evaluation of the needs of the talented staff in the Tutoring Center, to best balance their expectations with the needs of the students. This evaluation will look at several key aspects, including hours scheduled and desirability for certain subjects for students. ● A robust effort will be made to recruit and retain peer tutors and Supplemental Instruction Leaders. The Tutoring Center will continue to collaborate with faculty to recruit peer tutors. Training and personal development opportunities will be available for peer tutors to keep them fully engaged and committed to the Tutoring Center operations. ● A renewed focus on development of staff will be implemented to empower our staff to be more flexible and continue meeting students at their level. This will include training on new and existing technology and how to incorporate new strategies in their tutoring and coaching sessions, while keeping an eye on the best practices of tutoring and academic coaching.
Resources Needed	To keep students at the center of decision making, the Tutoring Center will need to be proactive in data collection and consumption, be more agile, and continue to strengthen partnerships with faculty and staff across the college. The Tutoring Center will also need support from Institutional Effectiveness, Marketing and Communications and the student voice to continue to support an inclusive service model.
Responsibility Who is responsible for completing or implementing the modifications?	● Jessica Moreno, Dean for Academic Support, oversees the strategic oversight of several departments in the division, including the Tutoring Centers. ● Dr. Chassie Sherretz, Academic Support Manager, oversees managing the Tutoring Centers and Academic Success Initiatives.

	● Robert Galuski, Academic Support Coordinator, is in charge of coordinating the operations of the Tutoring Center including overseeing the tutors and the academic coaches.

Student and Academic Support Services

Address all fields in the template with an equity lens. If needed, you may provide a link to support your submission. 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 these data may be attached. The review will be sent back if any of the below fields are left empty or inadequate information is provided.

College Name:	Waubonsee Community College
Academic Years Reviewed:	FY18-FY22
Review Area:	Veterans Services
Review Team Please identify the names and titles of staff and faculty who were major participants in the review of this program/service and their role or engagement in this process.	Heather Watson, Academic and Career Advisor, Veterans Services Kathleen Smith, FA Veterans Coordinator/FA Manager
Mission How does the program/service contribute to the mission of the college?	Our goal is to provide outstanding service to those who have and those who continue to serve our country and families. Our streamlined process will help military affiliated students find success in college and their career.
Advancement of Equity How does the program/service help advance equity?	With the integration of academic and career advising, resources and technology were aligned to create a proactive advising model that reaches all students at Waubonsee - the vast majority of whom are first generation, financially vulnerable, academically under-prepared and/or are in another at-risk group.
Service Objectives Please provide a brief overview of the program or service being evaluated. What are the overarching goals/ objectives of the program/service?	Veteran Services provide students with up-to-date information on federal and state military education benefits, resources within the framework of the institution for academic and personal success, help students obtain educational benefits through a variety of programs offered by the Department of Veterans Affairs and the Illinois Student Assistance Commission and ensure compliance for federal and state regulations.
To what extent are these objectives being achieved? Please detail how achievement of program/service objectives is being measured or assessed?	The fact that we consistently pass compliance audits carried out by both the state and federal governments confirms that our objectives are being achieved.
Past Program Review Action What action was reported last time the program/service was reviewed?Were these actions completed? If not, what were the identified barriers to action?	Since this is the first time that Veterans Services is being reviewed, there were no actions reported in the previous review.

Indicator: Need

1.1. Is this program or service statutorily required? If yes, is the college meeting the required elements? How does the college ensure it meets all required elements?	Yes, this service is statutorily required. Public Act 096-0133 Higher Education Veterans Service Act is required to have a Coordinator of Veterans and Military Personnel Student Services on campus. The Academic and Career Advisor for Veterans Services serves as a "one stop shop" and provides information and support on getting started at Waubonsee, how to utilize federal or state education benefits, academic planning and support resources through a student's academic career. The FA Veterans Coordinator also educates students on how to utilize federal and state benefits, processes enrollment for benefits and assists with the financial aid process. Additionally, there is a designated FA Advisor who assists the FA Veterans Coordinator in processing federal and state benefits to ensure students receive entitled benefits.
1.2 What is the ***need*** for this program/service and how does the institution determine ***need***?	Waubonsee consistently serves between 100-200 students using military education benefits each semester. Due to the wide scope of benefits available, and ever changing state and federal regulations, there is a great need for centralized information and knowledge to ensure compliance and to provide correct information and support to military affiliated students.
1.3 If applicable, what is the student usage for this program/service?	New students meet with an advisor and then is assigned to my caseload.
1.4 How does the student usage compare to assessed need of the program/service?	Student usage = assessed need If we have students using benefits, we are needed.
Indicator: Cost	
2.1 What are the current expenditures of the department?	The current expenditures of the department is the staff development budget.
2.2 How is this program/service funded and what cost-effective strategies are in place to ensure sustainability?	The General Education fund is the source of funding for this service. The advisors work diligently to ensure that certification of enrollment is processed promptly to avoid any delays in funding, which is one of the cost-effective strategies in place to ensure sustainability.
Indicator: Quality	
3.1 If applicable, how does the college program/service measure against any quality benchmark and standards?	This is not applicable.

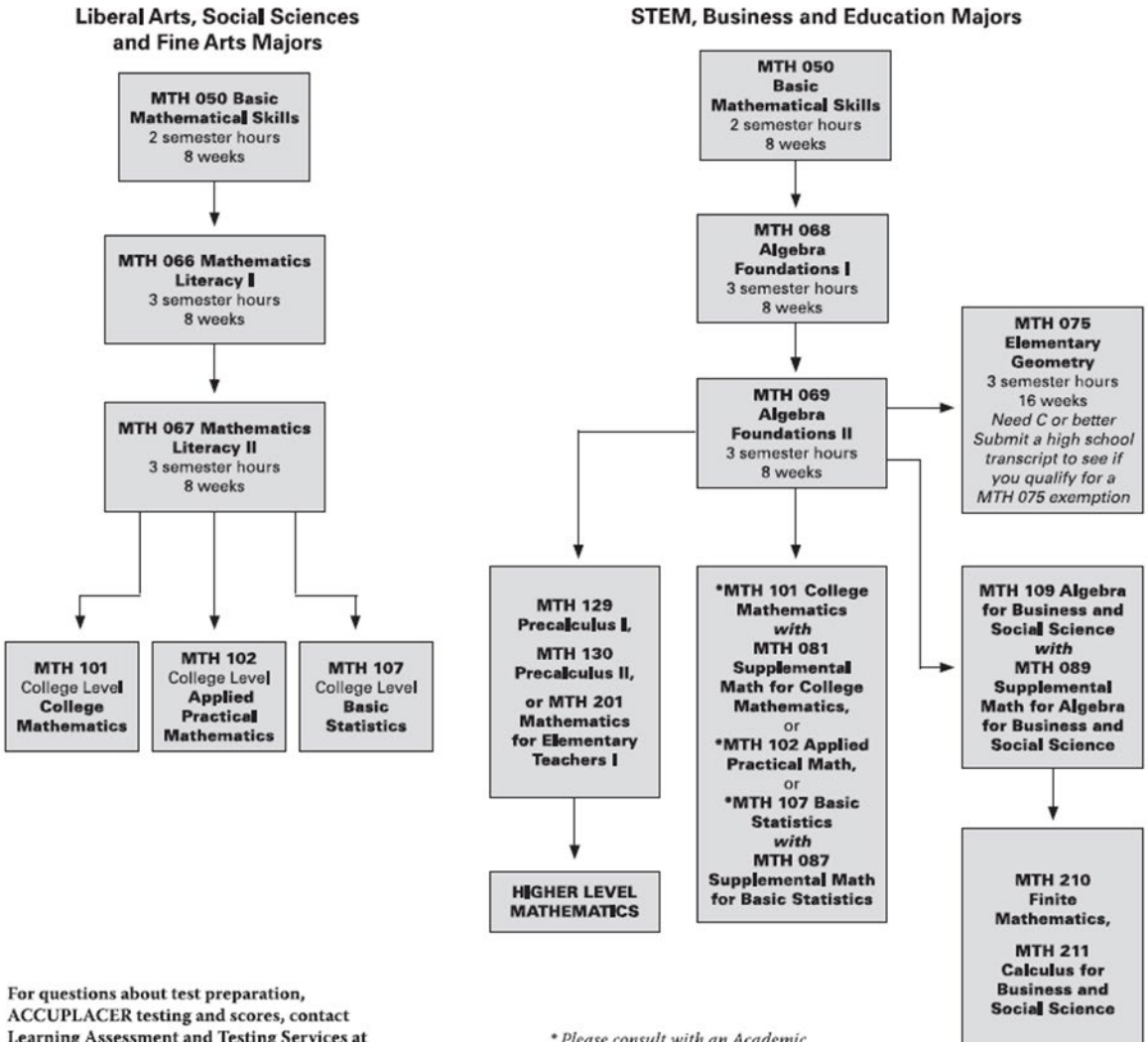
3.2 How does the college ensurethat all staff are qualified and appropriate to overseeing or providing the program/service?	The Veterans Administration mandates that School Certifying Officials must fulfill annual training requirements. With the appropriate departmental approval, additional training opportunities are also available through external military service agencies.
3.3 What, if any, innovations have been implemented within this program/service that other colleges may want to learn about? How have these innovations had an impact on student success?	The certification process we follow is streamlined, resulting in the prompt processing of funds for students, which ultimately benefits them.
3.4 What are the strengths of this program or service?	The service's main advantage is its ability to decrease student debt, and the implementation of the process helps to minimize errors in processing enrollment certifications.
3.5 What are the challenges or weaknesses of the program/service?	There are no challenges identified at this time.
3.6 What tools were utilized to determine program/service strengths and challenges? i.e., student surveys, focus groups, interviews, co-curricular assessment, etc.	Monthly Qualtrics quality surveys are sent to each student who has an appointment with their assigned advisor/counselor. Select reporting from Student Success Platform (EAB/Navigate) on student performance and advising usage.
3.7 What, if any, continuous improvement processes are in place and utilized to evaluate data and implement solutions? .	Program review is a continuous improvement process that each department undergoes. In addition, Veterans Services undergoes audits conducted by the state and federal government.
3.8 What disaggregated data was collected, measured, and evaluated to assess program/service effectiveness?	No data is being collected at this time.
3.9 Were there any identifiableequity gaps in the data? Please explain.	This is not applicable.
3.10 How is the college seeking opportunities to close the gap and provide equitable access to programs and services?	The college is exploring various strategies to address the gap and provide equal access to programs and services. This includes conducting surveys and focus groups to identify the needs and barriers faced by underrepresented students. Additionally, the college is working to expand its outreach efforts to these students by partnering with community organizations and increasing its presence on social media

	platforms. The college is also reviewing its policies and practices to ensure they are inclusive and supportive of all students, regardless of their backgrounds. Finally, the college is actively seeking funding opportunities to support its efforts to bridge the gap and provide equitable access to programs and services.
3.11 How does the program or service address inequities in instructional programs, if appropriate?	This is not applicable.

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. Continue to provide the veterans with service that reduces barriers. Ongoing 2. Continue to meet the requirements of the VA by passing the audits. Ongoing
To what extent are action steps being implemented to address equity gaps, including racial equity gaps?	In accordance with Title 38 US Code 3679(e), Waubonsee Community College adopts the following additional provisions for any students using U.S. Department of Veterans Affairs (VA) Post-9/11 G.I Bill® (Ch. 33) or Vocational Rehabilitation & Employment (Ch. 31) benefits, while payment to the institution in pending from VA. Waubonsee Community College will not: • Prevent the student's enrollment; • Assess a late fee to the student; • Require the student to secure alternative or additional funding; • Deny the student access to any resources (access to classes, libraries, or other institutional facilities) available to other students who have satisfied their tuition and fee bills to the institution.
Rationale Provide a brief summary of the review findings and a rationale for any future modifications.	To summarize the review findings, the Veterans Services will persist in their efforts to reduce student debt and ensure timely processing of enrollment certifications to avoid errors. At present, there are no plans for future modifications.
Resources Needed	Continued support of administration.
Responsibility Who is responsible for completing or implementing the modifications?	Advisors with the support of administration.

Addendum A
Compressed Model for Math Courses



Addendum B

Student progression through Developmental Math 2016 – 2021

Cohort		Full or Part-time Status	# of 1st-time in college students	# of 1st-time-in-college students with Dev Math Placement	% of 1st-time-in-college students with Dev Math Placement				1st-time-in-college students with DE Math Placement -DE Math Enrollment				1st-time-in-college students with DE Math Placement – Gateway Math Course Enrollment				1st-time-in-college students with DE Math Placement – Gateway Math Success		1st-time-in-college students with DE Math Placement – Credit Accumulation (average cumulative # of credits)				
					AY1		AY2		AY1		AY2		AY1		AY2								
					#	%	#	%	#	%	#	%	#	%	#	%	AY1	AY2	AY1	AY2	AY3	AY4	AY5
Historical Data	2016-17	4,046	1,074	27%	633	59%	699	65%	141	13%	317	30%	92	9%	212	20%	15.1	25.2	3%	9%	19%	24%	28%
	2017-18	3,553	887	25%	492	55%	559	63%	65	7%	200	23%	36	4%	136	15%	15.1	24.9	3%	8%	16%	21%	
	2018-19	3,406	710	21%	452	64%	489	69%	78	11%	184	26%	56	8%	154	22%	16.5	26.5	4%	10%	20%		
	2019-20	3,236	903	28%	603	67%	658	73%	143	16%	301	33%	108	12%	234	26%	16.6	26.5	3%	11%			
	2020-21	2,721	667	25%	389	58%			119	18%			83	12%			16.0		3%				

NOTE: The denominator for the dev ed and gateway enrollment, gateway success, and degree/certificate attainment percentages is the number of first-time college students in the cohort who placed into developmental education in Mathematics. Data represent dev ed placements determined by placement testing. Data exclude placements determined by multiple measures. Table excludes first-time students in calendar year 2017 who took the ACCUPLACER Elementary Algebra test and received a score between 76 and 107. Those students were allowed to choose between developmental- and gateway courses. SOURCE: Advance data downloaded 2/25/2022.