STATE BOARD FOR COMMUNITY AND TECHNICAL COLLEGES
OCTOBER 2024
STATEMENT OF NEED
COMPUTER INFORMATION SECURITY & IT PROJECT MANAGEMENT

BATES TECHNICAL COLLEGE

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Program Information

Institution Name: Bates Technical College

Degree Name: BAS in Computer Information Security & IT Project Management

CIP Code: 11.1003

Name(s) of existing technical associate degree(s) that will serve as the foundation for this program:

Degree: AAS Cloud Computing and Networking Technology

CIP Code: 11.1202

Year Began: 2005

Degree: AAS Cybersecurity

CIP Code: 11.1003

Year Began: 2020

Degree: AAS Information Technology Specialist

CIP Code: 11.0901

Year Began: 2002

Degree: AAS Software Development

CIP Code: 11.0201

Year Began: 2005

Proposed Start Implementation Date (i.e. Fall 2014): Spring 2026

Projected Enrollment (FTE) in Year one: 12

Projected Enrollment (FTE) by Year five: 40

Funding Source: State FTE

Mode of Delivery

Single Campus Delivery: Bates Technical College, 2320 S. 19th, Tacoma WA 98405

Off-site: This will be housed at Bates' Central Campus location

Distance Learning: Hybrid teaching will be utilized

Statement of Need

Please see criteria and standard sheet. **Page Limit: 20 pages**

Contact Information (Academic Department Representative)

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Chief Academic Officer signature

The Statement of Need must be signed. To sign, double click on the signature line below.

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Chief Academic Officer

8/30/2024

Introduction

In today's interconnected and digital landscape, the importance of information security has never been more crucial. Information Technology (IT) and Cybersecurity professionals are essential in safeguarding the integrity and security of information systems and data, the critical role is evident on a near daily basis as cybercrimes and cyberattacks become a fixture in the daily news. One such event is the recent high-profile hack of CDK Global, which nearly halted sales and business as usual at over 15,000 car dealerships nationwide. This incident and so many others like it highlights how cybersecurity breaches can have lasting and far-reaching consequences, affecting businesses and individuals alike. Bates Technical College has also been a victim of this type of attack.

As technology continues to evolve and integrate into every facet of our lives, the demand for skilled IT professionals who can manage computer and information security is rapidly growing, and roles within IT and other professions are merging and evolving all the time. A few examples of this are evident when the fields of Project Management, Auditing and Compliance are evaluated. Each of these occupations is well established, yet within each there is an expanding need for professionals with the typical skills of the occupation combined with information technology, cybersecurity and other specialized technical expertise such as programming fundamentals, knowledge of cloud security, computer networking or data analytics. There is also a critical need for tech proficient professionals who can effectively manage projects and analyze and respond to cybersecurity risks in a team environment

Introducing a dedicated degree path for individuals to enter these specialty roles related to IT project management, IT auditing, security risks, governance, and compliance will address this gap and equip the workforce with the expertise needed to navigate and mitigate the complex risks inherent in today's business operations, where digital communication and data sharing has become inevitable. According to Cyberseek.org, "From May 2023 to April 2024, there were only 85 cybersecurity workers available for every 100 cybersecurity jobs demanded by employers." The Lightcast Quarterly Cybersecurity Talent Report for Q2 2024 states that there are 225,200 more cybersecurity workers needed nationally. A significant issue is the level of experience and education employers are looking for. The report highlights that "Cybersecurity employers can't find experienced workers, and new cybersecurity workers can't find their first job."

The Bachelor of Applied Science (BAS) in Computer Information Security and IT Project Management will emphasize cybersecurity risk analysis, auditing and compliance skills, and is a pioneering program designed to cater to the dynamic job market of the Greater Seattle area. This program will offer a blend of practical skills and theoretical knowledge to prepare students for the multifaceted challenges of IT departments, allowing them to work at a wide variety of companies in project management and cybersecurity auditing, governance, risk, and compliance analysis and reporting. We will provide a pathway for those with associate degrees and experience in IT roles to continue their education through a bachelor's degree and ultimately expand their access to better-paying jobs. The curriculum will be structured to offer a mix of foundational courses, intermediate studies, and advanced topics, ensuring that students gain a thorough understanding of both Project Management and Information Security domains.

The cybersecurity job market has tripled in the past decade, driving up wages and public interest in the industry. A Washington Post article published on June 21, 2024, titled "Demand for Better

Cybersecurity Fuels a Booming Job Market," discusses the paths that Gen Z and mid-career job seekers are taking to earn the certifications and credentials needed for careers in cybersecurity. The article highlights that public awareness of these careers has risen dramatically due to the over 758,000 cyber-attacks occurring annually worldwide—a number likely lower than the actual figure, as it is estimated that only one in five such attacks are reported. Students are flocking to bootcamps, certificate programs, and degree programs at colleges and universities, public and for-profit companies, both online and in-person, to acquire the necessary skills. The increase in media attention given to cyber-attacks has started to attract students from a wider variety of backgrounds, as an emphasis on problem-solving skills, legal and regulatory aspects, and managerial skills are valued. As with any education, quality varies across the options in cybersecurity education, students must be savvy when selecting a program and emphasizing the importance of hands-on training, career-connected learning and in-demand skills. In addition to having the appropriate skills, approximately half of current job postings we reviewed require a bachelor's degree.

Criteria 1

Relationship to institutional role, mission, and program priorities.

Bates Technical College leadership recently finished drafting our five-year strategic plan. This plan focuses on continuing the momentum of the prior plan and emphasizes three primary goals for campus and community engagement to build upon the nearly 85-year track record of providing excellence in workforce education that is both industry-driven and focused on supporting students in gaining the technical skills required for today's employment as well as tomorrow's opportunities.

1. Workforce Education pathways. This goal is focused on alignment with current industry, providing options to meet students' needs, ensuring students are workplace ready, and graduates can demonstrate the skills needed for thriving-wage employment.

2. Student-Centered in all we do; Bates is continually improving the student experience with programs and supports toward equitable degree attainment and student success for all.

3. Community and campus engagement; in this goal we focus on equitable access for the community, work toward student demographics that match the community, and program development that will attract students and provide them with opportunities to enter emerging and innovative career pathways.

Bates Technical College's student population reflects the diverse Tacoma community it serves—according to the State Board for Community and Technical College's 2023 Field Guide, 43% of its students are persons of color, and 29% are low-income and receive financial aid. Our mission emphasizes diversity, student achievement, and education leading to successful employment. This degree will build on the college's historical impact as an institution that provides a variety of meaningful short- and long-term degrees and credential options, each appropriate for the industry sector and jobs it is intended to help students access.

This IT Computer Information & Security Project Management BAS is closely aligned with the mission and priorities of the institution as it will provide graduates a quality baccalaureate degree relevant to

the regional tech industry and leads to jobs with high salaries and advancement opportunities. Project management is a high-growth area that is unlikely to be automated in the future and provides long-term employment prospects both locally and in the remote workforce. Although some individuals can access these careers with associates degrees, industry recognized credentials and certifications and without a bachelor's degree, this degree and the demonstrable skill set will give them a competitive advantage. Another group who will benefit from access to this program are incumbent workers not possessing a baccalaureate degree that are in entry or mid-level IT support roles and struggle to achieve career growth. Both the statewide and college priorities tie to this upskilling of workers that leads to growth in their earnings and opportunities.

As cyberattacks become frequent, many companies are focusing on prevention and planning, creating policies and procedures to handle attacks or threats. Small and large companies, government agencies, cities, and individuals are increasingly turning to individuals who are skilled in managing this type of work, and we expect these roles to become increasing frequent as subsets of established cybersecurity and other occupations. This program proposal has been informed by our Advanced Technology Advisory Committee. These local industry representatives play a critical role in evaluating the relevance and currency of our offerings and have, over the years, recommended we develop a degree such as this, and taking their feedback and acting on it is another priority in our strategic plan.

In conjunction with our advisory committee, we developed the following draft program outcomes for the BAS degree:

- Apply project management approaches effective in the IT context

- Integrate technology and business needs into IT operational decision-making

- Devise strategic solutions for governance and industry compliance regulations

- Develop a complete IT project implementation plan and decision package

- Create and implement IT policies synthesizing input from multiple perspectives

Bates will design and deliver the program to accommodate working adults by offering courses in a hybrid format, reducing the need for on-campus time. The curriculum will feature applied activities, projects, and work-based learning where possible. The BAS program will take two years to complete beyond a related AAS degree, will provide a pathway from all IT programs at Bates, and an effort will be made to align with AAS degrees offered by regional colleges and prioritize the creation of pathways into our program for students attending other local colleges who are interested in this specific sector of the industry. Additionally, the program will actively seek opportunities for granting credit for prior learning and accelerated completion for those with significant work experience.

Criteria 2

Support of the statewide strategic plans.

The proposed program aligns with the strategic plans developed by the Washington Student Achievement Council (WSAC) and the State Board for Community and Technical Colleges (SBCTC), particularly in terms of upward mobility, career-relevant learning, and equitable student access and

success. This alignment is evident through various program components designed to broaden participation and support diverse student populations. The Bachelor of Applied Science in Computer Information Security & IT Project Management will place a strong emphasis on inclusive education and accessibility, addressing key points outlined in the statewide strategic plan. By focusing on project management skills in addition to advanced IT technical components, the program is designed to attract a broad range of students. Labor market data indicates 44% of Project Management Specialist roles are held by women nationwide, and many female-identifying people are particularly drawn to project management roles, which will help promote gender diversity within the program and in the tech industry.

The hybrid modality enhances accessibility for students with caregiving responsibilities, particularly parents. We will offer a combination of hybrid and in-person classes, as well as online where appropriate, to ensure students benefit from the flexibility of remote learning while still engaging in the collaborative, supportive environment that in-person education provides. This approach aims to improve student success and retention compared to fully online programs, which are currently more common. The program is committed to increasing the representation of students of color in management and leadership positions within the tech industry, cultivating an inclusive learning environment, and providing pathways to leadership roles for underrepresented groups. To further support equitable access, the program will establish robust transfer pathways both into and out of Bates Technical College to other local colleges and universities. This proposal aligns with strategy 2.2.5 of the statewide strategic plan, focusing on underserved and marginalized students, facilitating seamless transitions, and increasing their opportunities for academic and professional advancement.

In alignment with the state's Goal 3, the BAS program emphasizes agile, career-relevant learning, ensuring that students are prepared for the dynamic needs of the tech industry. By collaborating with local industry partners, the program aims to create upward mobility for students, providing them with the skills and credentials needed for high-demand careers. The additional BAS pathways address the growing requirement for bachelor's degrees in technology careers, offering multiple entry points for students coming from various tech-related AAS degrees. This strategy supports the accumulation of higher-level certificates and degrees, enhancing students' skills and earning potential. IT Project Management positions typically require two or more years of relevant IT work experience and skills alongside project management specific training, so attracting those with multiple years of experience and helping students gain experience through work-based learning with both be critical to helping BAS graduates enter the types of positions we are targeting.

The program will also offer students a path to master's degrees, further expanding career opportunities for graduates. Given the high demand for cybersecurity education, bolstered by legislative investments like Cyber500 and Aero1000, this program is particularly relevant. It prepares students for critical roles in cybersecurity and IT project management, aligning with the state's recent focus on these high-need areas. After discussing this program internally and with personnel at the Washington Center of Excellence for Cybersecurity, we recognize that embedding work-based learning opportunities is integral to the program's success. The BAS program will strive to provide local or virtual work-based learning experiences for all students; this hands-on approach ensures that students are academically prepared and gain practical experience in real-world settings.

The program's design also aligns with findings from the 2021 report by Burning Glass Technologies

that helped inform the SBCTC strategic plan, which highlighted significant shifts in the workforce due to the pandemic. The report identified key economic patterns shaping the future of work, including the rise of the "Remote Economy" and the "Readiness Economy." This BAS program will prepare students by equipping them with the necessary skills to thrive in remote work environments, where IT project managers often play a crucial role in managing distributed teams critical to social resilience.

The Bachelor of Applied Science in Computer Information Security & IT Project Management is strategically aligned with statewide goals to ensure equitable access and provide agile, career-relevant learning opportunities. By preparing graduates for the evolving demands of the tech industry, and any industry that relies on interconnectedness, this program supports the state's mission to foster a skilled, inclusive, and resilient workforce. Washington Technology Solutions, which aims to support WA businesses in a variety of ways, has a Cybersecurity arm that "works to prevent and mitigate future risks through proactive steps to continually strengthen the state's security posture," and has been growing two teams toward this goal, The first is the Security Operations Center, working to proactively identify threats and alert agencies, and the second is the Cybersecurity Risk Assessment, which "targets the need for a consistent, repeatable assessment methodology. Organizations use cybersecurity risk assessments to identify, estimate and prioritize risk resulting from the operation and use of information assets." These two priorities are supported through this degree, training individuals to participate actively in this work at any company or organization that uses technology to transmit information for any purpose.

Criteria 3

Employer/community demand for graduates with baccalaureate level of education proposed in the program.

The Washington Center of Excellence (WA CoE) for Cybersecurity, Cyberseek.org, the Lightcast Quarterly Cybersecurity Talent Report, the National Initiative for Cybersecurity Careers and Studies, and Cyber.org from the Cyber Innovation Center, all highlight the statistics that there are an increasing number of roles in or adjacent to IT Cybersecurity, Lightcast's Q2 report points to a supply of 1,284,639 workers nationally and puts demand at 1,509,838. As Artificial Intelligence continues to change the nature of work, experts predict skills around leadership, the ability to manage initiatives, develop talent, support cyber-related legal and law enforcement activities, governance, compliance, and risk analysis will be increasingly requested by employers. This program aims to equip students with the necessary skills to enter the workforce or advance their careers in the rapidly growing yet well-established local or national IT industry, especially in roles where the individual will be primarily responsible for managing IT projects efficiently and/or identifying, assessing, and mitigating cybersecurity risks inherent in doing business. In Washington state, IT Security, Compliance, and Project Management professionals earn an average median salary of $128,280.

According to CVEdetails.com, there were 29,066 security vulnerabilities found in various pieces of software during 2023, these are potential issues found in products that companies or individuals would then need to examine, evaluate and determine how to respond appropriately. Microsoft has published several Whitepapers on Cybersecurity, including one titled *Developing a National Strategy for Cybersecurity.* This paper encourages "development of a strong and cyber-literate workforce" and

creation of career paths for security experts in government or private sector roles. The same report emphasizes the need to ensure "leaders have adequate training to understand risk management and cybersecurity, to make informed policy and business decisions." Our proposed BAS degree is less technical than the offerings of our neighboring colleges and universities and will focus on the operational and management aspects of the industry.

Graduates of the Computer Information Security & IT Project Management BAS should be well-equipped for hundreds of entry or mid-level roles across nearly every industry, or more advanced roles with industry experience. The industry demands that inform this statement of need focus on roles such as IT Project Manager, IT Project Coordinator, IT Auditor and related titles, IT Compliance professionals, and Information Security professionals. Information Security Analysts, taken as an occupation encompassing many specific roles, is currently the fourth fastest growing occupation nationwide. Cyber.org, funded and operated in conjunction with the National Cybersecurity & Infrastructure Security Administration, promotes a variety of career pathways through their "Cyber Career Profiles" on their Career Exploration tool. These are filterable by degree level, and of the 24 different profiles available, 11 are listed as requiring a bachelor's degree, including IT Project Manager (12% growth), Threat & Warning Analyst (30% growth), and Information Systems Security Manager (20% growth). The curriculum will provide room for growth into advanced high-demand roles such as Business Systems Analysts and IT Systems Analysts, which all require a mix of education, advanced certifications, technical skills and industry experience. This section contains labor market information sourced from Cyber.org, Cyberseek.org, the WA Economic Security Department, Careeronestop.org, O*NET online, and Lightcast.

*Table 1: Occupations, degree requirements, wages, openings, and growth projections (from O*NET Online)*

Occupation Title	SOC Code	Bachelor's Degree Required?	Projected Growth, 2030 (WA)	Average Annual Wages (WA)	WA State Employment (2022)	Predicted Annual Openings 2020-30 (WA)
IT Project Managers	15-1299	38%	30%	$128,200	14,060	2,030
Computer and Information Systems Managers	11-3021	48%	31%	$202,190	15,750	2,330
Computer Systems Analysts or Specialists	15-1211	Not stated	27%	$128,710	21,180	2,800
Information Security Analysts	15-1212	53%	48%	$142,940	3,520	650

Cyber.org estimates the median national IT Project Manager salary is $97,000 with nationwide growth at 12%, while other sources forecast much faster in the Seattle-Tacoma region, with 20-30% growth predicted. Top skills requested include Project Management Institute methodology, project risk management, risk mitigation, project controls, systems development lifecycle, process

improvement, change management, knowledge of finance and accounting, and IT risk management. The Lightcast occupational overview for Project Management Specialists reveals that the largest group of professionals in these roles, 47%, hold bachelor's degrees, 6% have an associate's degree, and 13% have some college but no degree.

In addition to project management skills, an emphasis on auditing, compliance, risk, and governance methodologies in this degree will help students enter jobs with titles such as IT Compliance Officers, IT Risk or Threat Analysts, IT Auditors, IT Project Specialists and Coordinators, as well as adjacent fields such as Cybersecurity Policy and Planning, Program Management, Regulatory Affairs Specialists, and Coordinators. Taken together, these IT security related roles are collectively expected to grow 15-25% in the next decade, adding 3,000+ jobs to the existing 20,000+ positions in the region. Many of these positions are with the State or Federal Government, local and state hospitals, consulting companies, and tech firms. Exact occupation numbers are not available from most of these labor market information sources since the IT specific roles have not been disambiguated from the generic occupation codes. A labor market search for "Auditors" or "Compliance" professionals represents roles historically filled by predominately Accountants and CPAs, so supply and demand data are represented broadly, rather than by IT professionals, and was excluded. The position of IT Auditor, much like IT Project Management, is a sector in the occupation.

Companies are increasingly recruiting IT Auditors and IT Compliance Officers who have a strong understanding of the operational and technical aspects of security audits, companies need auditors who understand the many different standards involved with SOC1 and SOC2 audits, Payment Card International, Cybersecurity Maturity Model Certification, Identity and access management and other national and international standards they must comply with. These are akin to the educational standards of FERPA and healthcare's HIPAA requirements, but for other types of data. The many employers seeking such professionals underscores the array of options available to students beyond the typical roles commonly associated with IT and cybersecurity. Preliminary results from an industry survey we are conducting indicate that hard-to-find skills include project management, Information security management, identity & access management, active Project Management (PMP) certification, communication, organizational principles and team effectiveness skills.

In an attempt to replicate the success of the Aviation industry whereby safety can be greatly increased when checklists, security protocols and audits are now routinely followed, so training specifically on these skill sets is sought after in today's market. Many people historically have "fallen into" careers as Compliance Officers, IT Auditors and/or IT Project Managers because of the skills they already possess and an emergent need in the organization. From interviews, the individuals filling these roles are not usually driven to be the best programmer, hacker or cybersecurity architect, rather they like working with people, have diverse work and life experiences and want to use their skills to improve efficiency, safety and security for their organization and community.

Diving in on the Lightcast Job Posting Analytics for the Seattle-Tacoma CSA and Pierce County region, Project Management Specialist roles are rapidly growing, with 2,444 different employers hiring for such roles, and 8,722 unique job postings from January 2023 to May 2024. There was an average of 513 new posts each month and 679 hired monthly, meaning some companies are hiring multiple people with each post. This data includes project management for a variety of industries, and not all specific to IT. A breakdown of the top job titles in the past 16 months shows Project Manager was

used generically for 2,223 posts, 538 were listed as project coordinator roles, 267 were Technical Project Managers, and 191 posts were seeking IT Program/Project Managers locally. Lightcast's job posting analytics tool helps provide a picture of the regional demand for graduates with the comprehensive skill set we envision. Using key words to retrieve jobs graduates will be best prepared for, such as IT Audit, IT Project, and IT Compliance, the following table provides regional job postings that would be relevant for graduates of the proposed BAS program.

Table 2: Job Posting Analytics for the Seattle-Tacoma-Bellevue MSA, Jan 2023-July 2024:

Common Job Title	Unique postings	Number of employers	Median Advertised Salary	Bachelor's Degree Required?	Primary SOC Code Ties
IT Project Managers	214	119	$51.82/hr	56% yes	Computer Occupations, all other, Project Management Specialists
IT Project Coordinator, Lead, Specialists, Consultants, Analysts and Assistants (excludes Project Manager)	349	102	$52.80/hr	60% yes	Project Managements Specialists, Computer Occupations All Other, Computer User Support Specialists
IT Compliance Specialist, Managers, or Analysts	47	25	$51.57/hr	53% yes	Compliance Officers, Computer Occupations All Other, Managers, All other, Accountants and Auditors
IT Auditors	59	32	$49.22/hr	59% yes	Information Security Analyst, Accountants and Auditors
IT Audit Coordinator, Leader, Intern, Analysts, Specialists, Associates, and Consultants (excludes IT Auditor)	36	20	$49.48/hr	69% yes	Computer Occupations, all other, Accountants and Auditors, Information Security Analysts, Computer and Information Systems Managers
IT Risk and Assurance Analysts, Managers, and Consultants	14	13	Not enough data	64% yes	Financial Risk Specialists, Information Security Analysts
IT Governance Analysts and Specialists	64	25	$73.11/hr	59% yes	Computer occupations, all others, Information Security Analysts, Market Research Analysts and Marketing Specialists
Threat Analysts, Cyber Threat Analysts, Network Threat Support Specialists	118	38	$79.51/hr	64%	Computer occupations, all others, Information Security Analysts

From the table above, many of the jobs are coded to "Computer Occupations, all others" and "Information Security Analysts," which are both broad standard occupational classifications. Information Security Analyst roles in general are particularly abundant in the region, in 2023 there

were 4,019 total jobs in the four-county region, Lightcast occupation data predicts 57% growth in the next decade, meaning regional employment may grow to 6,300 jobs by 2034. According to the Bureau of Labor Statistics, this is the fourth fastest growing occupation in the nation. Skills such as cybersecurity policies, forensic sciences, cyber threat hunting, auditing, incident response, and vulnerability and risk analysis are most often desired; this BAS degree is intended to prepare students for a subset of the roles housed under this SOC code, the majority of which require a bachelor's degree, as evidenced by Table 2. Compensation for these roles is higher in this region than the national average, with median salaries between $110,000 to $151,000. Based on conversations with the Director of the WA Coe for Cybersecurity and Kevin Wang, CEO and founder of Mentors in Tech, companies routinely call for a mix of degree attainment, hands-on work experience, project portfolios, and demonstrable skills, which we plan to provide in the new curriculum.

To better understand the experience required for the local jobs we aim to prepare graduates for, the search was repeated for the Seattle-Tacoma CSA, during January 2023-July 2024:

- 778 total unique job postings, by 293 employers, with $114,900 median advertised salary
    - 58% listed a bachelor's degree as the minimum education
    - 90 or 12% required 2 or fewer years of experience, average salary: $97,500
    - 392 or 50% requested 2-5 years of experience
    - 185 marked remote or hybrid, 577 did not specify, 16 marked not remote
    - 549 asked for Project Management skills
    - 211 asked for Project Management Professional Certification or similar education
    - 116 asked for auditing skills
- 259 unique posts seeking an IT Project Manager
- 59 IT Governance Manager openings
- 15 IT Governance Analyst openings
- 24 IT Compliance Manager openings
- 18 Audit Manager openings
- 18 Project Coordinator openings

From this, we see that only 12% of the local jobs are likely to be accessible by students with less than two years of experience, with another 50% of the jobs requesting applicants have 2-5 years of experience. In the program, we will aim to provide as much information as possible to students about realistic career progressions, aim to build in additional work-based learning into our AAS degrees, and work with employers to develop internships that students can participate in during the program, and potentially post-graduation to get that early career experience for students without prior IT work experience. We also plan to partner with industry members to provide employment mentoring. The program created by Mentor in Tech is a great example of a framework that helps students land better jobs and advance their careers. This program is currently focused on Software Development roles, but there may be an opportunity to collaborate and expand into IT with this or another partner.

The demand is clear, but the supply of graduates is less straightforward because of the many degree and credential offerings in or adjacent to Information Technology and Cybersecurity. It is complicated further by the variety of potential trajectories from different STEM programs into tech related jobs, and from Accounting, Business and other Social Science educations into Project Management,

Auditing or Compliance careers. We focus here on the IT aspect and used Washington State as the search region and queried IPEDs data retrieved from O*NET Online, combining similar fields to reduce possible double counting where STEM/Computer science or Business degrees routinely lead into multiple occupations.

Table 3: Supply/Demand Gap analysis of IT occupations mapped to CIP 11.1003, all awards granted in the Seattle-Tacoma CSA, via JobsEQ, accessed 8/30/2024.

Occupation Search Keyword	SOC	Awards	Target Range	Annual Demand	Award Gap
Information Security Analysts	15-1212	163	293-407	407	(131)
Computer and Information Systems Managers	11-3021	443	780-1,141	1,141	(337)
Computer Network Support Specialists	15-1231	96	170-279	279	(74)
Computer Network Architects	15-1241	80	144-219	219	(64)
Network and Computer Systems administrators	15-1244	136	240-378	378	(105)

Table 4: Supply/Demand Gap analysis of related occupations in Washington State.

Occupation Search Keyword	SOC Code	Bachelor's Degrees Granted (20-21)	Anticipated Annual Openings	Supply/Demand Gap	Example Programs Contributing Graduates
Computer Systems Analyst	15-1211	895	2,800	1,905	Information Technology, Computer and Information Sciences, etc.
IT Project Managers, Computer Systems Managers, Information Security Analysts	11-3021, 12-1299, 15-1212	4,578 across all disciplines, 18 in IT Project Management	4,710	132	Many STEM fields; Computer Science, Mathematics, Data Sciences, Informatics, etc.

Taken together, the data provided for Criteria 3 underscores the burgeoning demand for qualified project management, compliance, auditing, and information security professionals locally and across Washington state. Some target occupations originated outside of and continue to extend beyond IT and hold significant growth potential and attractive compensation across fields. By emphasizing project management, risk analysis, compliance, hands-on experience, and incorporating feedback from local employers, our BAS degree will equip students with the essential skills to thrive in these growing fields, meeting the needs of an array of employers beyond the traditional tech sector.

Criteria 4

Baccalaureate program builds from existing professional and technical degree program offered by the institution.

The curriculum will be thoughtfully designed to cover a broad range of topics essential for IT project management and cybersecurity governance, auditing, risk and compliance roles. The BAS curriculum will build on foundational courses taught in each of the existing four associate degree tracks, and we will work to identify the core course requirements to allow students to enter this pathway from other majors such as business with some bridge coursework, and work to align with other local colleges so students can enter this program directly after AAS programs, and/or from the IT workforce.

The main programs that lead into the BAS will be from the Advanced Technology Department.

1. AAS Cloud Computing Network Technician | CIP 11.1202 | Year Began 2005

2. AAS Cybersecurity | CIP 11:1003 | Year Began 2019

3. AAS Information Technology Specialist | CIP 11:0901 | Year Began 2002

4. AAS Software Development | CIP 11.0201 | Year Began 2005

Table 5: Advanced Technology department enrollment history by program and year, annualized FTEs:

	18-19	19-20	20-21	21-22	22-23	23-24*
AAS Cloud Computing Network Technician	13.0	12.3	14.7	22.6	13.6	12.7*
AAS Cybersecurity	7.3	21.7	23.7	28.6	41.4	48.3*
AAS Information Technology Specialist	19.3	19.0	28.0	14.3	22.1	16.3*
AAS Software Development	28.3	30.7	27.0	33.0	35.9	39.7*

*Not final values, based on college enrollment dashboard as of 6/26/24

The BAS in Computer Information Security & IT Project Management pathway will deliver a robust education that encompasses relevant IT and Cybersecurity topics, alongside project management and business skills increasingly needed for the IT roles described in the last section. Courses built around Business Continuity, Disaster Recovery and Incident Response will widen the cybersecurity viewpoint and allow students from varied backgrounds to adapt and absorb the curriculum and learn from each other, all while preparing them for team-based roles in the workforce. We will focus on IT related Project Management skills while exposing the students to Cloud and container Security Risks to provide employers with well-rounded job candidates. The curriculum will dive into governance, risk, compliance and legal/regulatory companies face, allowing the students to begin to explore job markets that are in high need and are often overlooked by new graduates, and inaccessible by many graduates with work experience but no baccalaureate degree. This is what sets our program apart

and will distinguish our graduates from other candidates. This will all culminate in an applied capstone that ideally incorporates industry partners who can provide the students with real world experience and hands-on training.

Bates students and graduates will not be the only target audience, we plan to create multiple pathways into this program from the many high-quality local offerings of our neighbor colleges, and we will be intentional about building accelerated pathways for those with significant work experience, recognizing and giving credit for their knowledge and experience. We also plan to build pathways for further education and will work with graduate schools to create opportunities for graduates to further their education with online or local master's degree options.

Criteria 5

Student demand for program within the region.

The Washington Post article described in the introductory statement highlights how the rise in cyber-attacks has driven public awareness and interest in cybersecurity careers, while simultaneously leading to a tripling of the job market and growing wages. With the recent reports of hacking activity playing a role the war involving Russia and Ukraine, as well as major events involving large hospital systems and schools, Americans are increasingly aware of the public safety and national security risks associated with cybersecurity threats. College student interest has risen because of the personal impacts of these cyberattacks, it is becoming rare for someone to have not been affected by one of these attacks, whether a hacked bank account, social media account, a service outage because of a shutdown, or a notification that their information may have been accessed or shared. During classroom activities, nearly every student can readily share a story about a time they or a friend/family member were personally affected by an attack. Other news emphasizes the need for careful program selection due to varying quality, underscoring the importance of career-connected learning and hands-on training, which students are increasingly seeking out.

A survey was sent to technology program students at Bates Technical college, Green River College IT Cybersecurity and Software Development students, and Highline Cybersecurity students. As of the writing of this document, we recognize the summer quarter timing of the survey as being the primary factor in receiving a small number of responses, we had 15 students respond, primarily from Bates Technical College. Of the respondents, 13 or 87% were interested in the BAS degree, with 60% of respondents indicating they are extremely interested. The topics students were most interested in were information security management, integrating business needs into IT, and operations decision making. The students were least interested in financial analysis, quality assurance and the incorporation of IT overall in the BAS. One respondent noted that adding A.I. courses could be useful.

The current 15 anonymous respondents did not list anything that is missing from the current BAS pathway draft provided in the survey instructions. When asked if they feel they have access to relevant bachelor's degrees that meet their goals, only 33% of respondents reported that they feel confident they currently have access to relevant BAS degrees, 20% were unsure, and 20% had not researched bachelor's degrees options. Four students, or 27% indicated they do not feel they have access at this time. Several students left optional comments on the survey pointing to the role this would play in students' lives. "I think this will benefit a lot of people who are looking to get a bachelor's degree in this industry because they would be able to stay with Bates to pursue higher

education. They could leave Bates having most of the tools they need to go into the industry, and more importantly, with a bachelor's degree, which is widely recommended if not needed in order to even get hired for jobs in this industry. Also, people might feel more encouraged to purse a bachelor's degree if they can just continue their education with Bates."

For Bates Technical and other local College students, this would provide them with a direct pathway to a BAS without having to take online classes or travel to other colleges. We are keeping the survey open to gather more responses, and plan to reach back out to IT faculty at other local colleges and re-send to Bates, Green River, Clover Park, Highline and Tacoma Community College students early in the fall quarter, to inform further planning. We also added a question that allows students to indicate which college they are attending, which was an oversight on the initial survey.

In terms of enrollment projections, we anticipate cohorts of 20 students in the program, beginning with one cohort of students, and evaluating if a second cohort starting each year is warranted over time. We are conservative in estimating that the first two cohorts may not be full as the program is initially offered and based our enrollment numbers on an 85% retention rate into year two, and depending on attrition, cohorts may need to be larger than 20 initially to reach 40 total enrolled. Most Bates Technical programs admit students in the Fall and Spring quarters, and we believe this timing would work well for the BAS program as well, if there is sufficient student demand for two cohorts. We are also considering the possibility of alternate format cohorts and will evaluate the demand from incumbent workers who may need evening, virtual and/or part-time program options.

Table 6: Anticipated BAS enrollment by year, headcount:

	2025-26	2026-27	2027-28	2028-29	2029-30
BAS - ITP	15	28	32	35	40

Criteria 6

Efforts to maximize state resources to serve place-bound students.

This program maximizes state resources to serve place-bound students by offering in-person and hybrid learning options, ensuring accessibility for those who cannot relocate, but flexibility for our students who must work or have caregiving responsibilities. Of our current student population, 29% receive need-based financial aid, and 40% have dependents. One of our student survey respondents pointed to barriers to bachelor's attainment, and the need for employment and options to return for further education. "I am taking specific classes with credits that will transfer to a university to get my bachelor's degree, but I don't have it planned as of this moment, the biggest thing holding me back is the need for a job to make a better living as soon as I can, maybe one day I'll be able to go back to school after getting comfortable at a job." We know many of our students must work full- or part-time to support themselves while attending school, meaning hybrid or online education is appealing, though this is not always the most supportive modality for students, and some struggle to keep up and stay engaged, so collaborative activities, frequent opportunities for meaningful interaction between students and instructor and careful curriculum planning is key.

In the early ideation stages of for this program back in 2021 and 2022, as well as while developing this statement of need, we consulted with the WA Center of Excellence (CoE) for Cybersecurity personnel. In May 2024, the CoE Director shared preliminary findings from a gap analysis being conducted in conjunction with WA Technology Solutions, which employs over 4600 workers in the state, across government sectors. Several specific skill sets are emerging from that gap analysis work, primarily around risk management, cloud security, identity access management, and the need for integrating software development and security professionals, along with the ever-increasing need for business process minded individuals with personnel and project management skills. The CoE created a set of personas representing the different broad roles in the tech sector, a few relevant examples are IT Project Management, IT Business Analysts, IT Policy and Planning, and IT Security, which encompasses the Governance Risk and Compliance Analyst, and IT Risk Analyst. These are aligned with our proposed program, but not directly tied to the offerings of our neighboring colleges, such as Highline College, Green River College and Clover Park Technical College who focus on other similarly high demand areas such as penetration testing, digital forensics, cloud security, defensive cybersecurity tools, implementation of security software or hardware, and networking.

Continued conversations with CoE staff, industry experts, and faculty provided additional insights into the ways that artificial intelligence and the rise of outsourcing security work are changing the IT Cybersecurity industry and employer skill set demands. Our research into labor markets supported our original premise that the governance, compliance, auditing, risk analyst, and project management skill sets are increasingly needed but not emphasized in other BAS programs around the state. We have communicated with and received supportive communication from both Highline and Green River College, both expressed interest in our proposed BAS degree as a transfer option for their AAS students. We plan to work with our other neighboring institutions in the fall and beyond.

Key Points:
- In-person and hybrid learning options for place-bound students.
- Curriculum alignment with local industry needs and emerging skillsets.
- Focus on governance, risk management, auditing, compliance, and project management.
- Unique emphasis compared to other university programs, creating multiple transfer options for our students and other local students.
- Preparation for both local and remote job opportunities in multiple industries, beyond tech companies.

By leveraging local industry insights and aligning the curriculum with emerging employer demands, we will provide a comprehensive IT education that directly addresses the state's workforce needs that other colleges are not directly focusing on. Unlike other cybersecurity programs, our curriculum focuses on blending technical skills so students can utilize their technical expertise and essential business skills. This will make graduates competitive for a variety of roles in project management, compliance and adjacent positions in the IT cybersecurity industry, as they will be equipped to navigate both the technological and regulatory aspects of the work. This approach ensures that students are well-prepared for the evolving industry while also addressing the specific needs of current the local job market.

Criteria 7

Promoting equitable opportunities for students, including historically marginalized students.

A cybersecurity bachelor's degree program that appeals to women, low-income students, non-traditional students and people of color must emphasize the personal and societal impacts of cybersecurity risks, cyberattacks and the diversity of open roles within the field. Highlighting how cybersecurity professionals can protect individuals and communities from cybercrime can resonate deeply, especially as awareness of these issues grows and many students choose a path based on the personal impact they can make during their career. Our BAS in IT Project Management will aim to do just this, and we will also ensure that we highlight diverse professionals as we showcase the variety of roles within cybersecurity that this degree can lead graduates toward. From our research and conversations, preparing people for roles such as compliance, project management, and other positions that do not solely focus on technical skills, can and will attract those who might not see themselves in traditional tech roles yet would excel in these essential business areas.

In our research, we found the offerings emphasizing IT project management were mostly online, and/or offered by specifically online universities. There is one program in the state of Washington already, from Central Washington University. This program is the only one we found that students could complete in a hybrid format, according to their website, the IT Project Management specialization under their BS or BAS in IT Management can be completed at their Ellensburg campus, CWU-Pierce County, CWU-Lynnwood, CWU-Des Moines, or 100 percent online. Meanwhile, students at the CWU-Moses Lake, CWU-Sammamish, CWU-Wenatchee, and CWU-Yakima complete all their classes 100 percent online. We inquired further with CWU and were told that "hybrid, in this instance means that the students may be able to attend a classroom on campus locally, while the instructor is in Ellensburg, and only a limited number of the classes "may" be taught locally.

Table 7: IT Project Management or Project Management offerings, from an online search 8/30/2024:

Institution	Degree	Modality	Non-resident tuition costs
Arizona State University Online	B.S in Project Management	Online	$574 per credit, 120 credits = $17,220/year
Central Washington University	B.S. or BAS in IT Management, Project Management Specialization	Online or Hybrid/Distance education	Online or Hybrid $7,231/year
City University of Seattle (private university)	B.S Science in Project Management	Online	$495 per credit, 180 credits = $22,275/year
Davenport University (private)	B.S Technology Project Management	Online	$658 per credit, 120 semester credits $19,740/year
Strayer University	B.S in IT Project Management	Online	$1525 per course, 40 courses $15,750/yr

While these programs exist, they may not be truly accessible to students either because of the cost, or the format. Bates and other regional 2-year college students tend to indicate plans to continue their education locally and in the same format they first enrolled in, which is likely a reason that BAS programs have seen significant growth in the state in the last decade. The high cost of these out of state, private and online bachelor's degrees highlights the need for additional lower-cost options for students, including in-person and hybrid offerings. A 2023 study published by the American Educational Research Association found that "Black, Hispanic, and low-income students may have more competing priorities, which would explain the particular benefit that they get from taking a few online classes. However, the study cites evidence that Black, Hispanic, and low-income community college students perform worse in online courses than face-to-face ones, which may explain the especially strong negative effect of an all-online curriculum."

This may also be driven in part by the fact that even in 2024, many households lack access to high-speed internet at home. A 2024 report from the National Urban League provided a new analysis of how students of color often lack reliable internet access at home. Across Washington state, 19% of households with annual income between $50,000-$75,000 and 11% of households with an annual income between $75,000 and $150,000 did not have high speed internet at home. For Black children and Latinx children, the problem is significantly worse, 26% and 32%, respectively, compared to just 14% of White households, and only 9% of Asian households. Fully online programs, those taught via distance education and without access to support programs or technology such as hotspot lending means many students would be unlikely to enroll or succeed in these programs.

The current IT and larger project management workforce, according to Lightcast, is predominately White. According to current data, 66.6% of the current workforce identifies as White, 17.3% Asian, 5.9% Hispanic or Latino, 5.0% Multiracial, 4.2% Black or African American, and less than 1% each Native Hawaiian or Pacific Islander and American Indian or Alaska Native. Similarly, 66.2% of the individuals in Compliance Officers roles in the region are White, 13% are Asian, 9.2% Hispanic or Latino, 5.1% Black or African American, 4.8% report two or more races, and 1% or less each Native Hawaiian or Pacific Islander and American Indian or Alaska Native. Demographic trends in Information Security Analysts are very similar and again does not reflect our diverse Seattle-Tacoma population, with 59.7% of Information Security professionals identifying as White, 21.3% Asian, 6.3% Hispanic or Latino, 6.2% Black or African American, 5.3% report two or more races, and less than 1% each Native Hawaiian, Pacific Islander, American Indian, or Alaska Native. This IT occupation is also overwhelmingly male dominated, with 82.7% filled by male identifying individuals.

In contrast, according to the 2024 SBCTC Field guide, 42% of the 6,721 Bates Technical college students are students of color. Our median age is 29, and 38% identify as female. Bates Technical College provides comprehensive support and resources for these students, including financial aid, tutoring, scholarships, and has historically worked closely with organizations dedicated to diversity in tech, including ongoing participation in the Ignite conference. We will build on relationships with local tech companies, develop a mentoring program, and work to maintain strong relationships with alumni, all of which will further aid in recruitment and retention.

Key Points:

- **Emphasize Impact:** Highlight the real-world impact of cybersecurity, showing how professionals protect individuals, families, and communities from cyber threats.

- **Highlight Diverse Roles**: Showcase various roles within cybersecurity beyond technical positions, such as compliance, project management, and policymaking, which may appeal more to women and people of color.
- **Mentorship Programs**: Establish mentorship programs connecting students with diverse industry professionals who can provide guidance, support, and networking opportunities.
- **Scholarships and Financial Aid**: Offer scholarships and financial aid targeted at underrepresented groups to reduce financial barriers to entry.
- **Partnerships:** Collaborate with additional organizations focused on increasing diversity in tech, such as Black Girls Code, Women in Cybersecurity, NCWIT Academic Alliance partnership (National Center for Women in Information Technology) and local middle and high schools, to create early and broad interest and help engage and prepare students.
- **Inclusive Curriculum**: Develop an inclusive curriculum that reflects diverse perspectives and includes case studies and examples relevant to different communities.
- **Support Services**: Provide robust support services, including academic advising, career counseling, and mental health resources, to support students throughout their education.
- **Community Engagement**: Engage with local communities to raise awareness about the industry and program and the opportunities within cybersecurity, fostering a sense of belonging and purpose.

We believe it is crucial in our program promotion to highlight the relevance of cybersecurity in protecting personal and community assets, emphasizing how cybersecurity skills can empower individuals to defend against cyberattacks and cybercrime, which disproportionately affect some groups. According to Wired.com and AARP, cyberattacks, digital scams, and fraud incidents disproportionately impact those least equipped to recover – including natural disaster victims, people with disabilities, older adults, young adults, military veterans, immigrant communities, and lower-income families. By stealing essential resources, cybercriminals compound hardships for those already struggling to make ends meet or experiencing some of the worst hardships of their lives, pushing these groups deeper into the margins. By promoting the career and potential impacts across the community and incorporating the above implementation plan items, the program will create a welcoming and supportive environment that attracts and retains women and people of color. We will help them find success in the cybersecurity field by preparing them academically, personally and professionally for long, fulfilling, and lucrative careers in various roles and industries.

Cyberattacks have become a daily interruption for individuals, organizations, and businesses. This BAS in Computer Information Security & IT Project Management will equip students with the essential skills that businesses increasingly seek to maintain and continuously improve processes and security measures. Anytime a file is shared, a database is accessed, Wi-Fi is used, or data is transferred, hackers have an opportunity to access and disrupt services if any part of the system is not properly secured. Auditing, following compliance standards, and evaluating and responding to risks in an interconnected world is the new normal for all organizations. As many companies have learned the hard way, even a small vulnerability can allow a hacker to find the loose thread, pull it, and watch everything unravel.

Resources

- Bates Technical College. Our mission and vision. Bates Technical College. Retrieved from https://www.batestech.edu/about-bates/our-mission-and-vision/

- CareerOneStop. Careers and career information. Retrieved from https://www.careeronestop.org

- Cyber.org. Career exploration tools. Retrieved from https://cyber.org/careers/threat-warning-analyst

- Cybersecurity and Infrastructure Security Agency information. Retrieved from https://www.CISA.gov

- CyberSeek. Career pathways data, industry, and skills gap information. Retrieved from https://www.cyberseek.org

- Hilding, T. (2024, May 5). Cybersecurity education varies widely in US. Washington State University Insider. Retrieved June 24, 2024, from Cybersecurity education varies widely in US | WSU Insider | Washington State University

- JobsEQ. (2024) Occupational outlook, Supply/Demand Gaps and related labor market information reporting tools.

- Kunkle, F. (2024, June 20). Demand for better cybersecurity fuels a booming job market. The Washington Post. Retrieved June 25, 2024, from Cybersecurity is in demand, open positions fuel a booming job market - The Washington Post

- Lightcast. (2024). The Lightcast quarterly cybersecurity talent report Q2 2024: The cybersecurity gap. Retrieved from The Cybersecurity Gap — White House Report | Lightcast

- Lightcast. (2024) Job Posting Analytics and Occupational Overview reports

- Lundstrom, B. (2024, May 24 & June). Director CoE, Cybersecurity. (Personal interviews).

- Maruf, R., & Rothenberg, E. (6/28/2024). What to know about the massive car dealership outage. CNN. https://www.cnn.com/2024/06/28/business/cdk-massive-car-dealership-outage/

- Menzies, T. (2024, July 1). Executive Director of Code Day. (Personal interview).

- Microsoft. Cybersecurity content hub. Retrieved from https://www.microsoft.com/en-us/cybersecurity/?activetab=cyber%3aprimaryr2

- Microsoft. (October 2013). Developing a national strategy for cybersecurity: Foundations for security, growth and innovation. Retrieved from https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/REVoNi

- National Initiative for Cybersecurity Careers and Studies (NICCS). Cyber career pathways tool. https://niccs.cisa.gov/workforce-development/cyber-career-pathways-tool

- National Initiative for Cybersecurity Careers and Studies (NICCS). Workforce development tools, including the Workforce Framework for Cybersecurity (NICE Framework). Retrieved from https://niccs.cisa.gov/workforce-development

- National Urban Leage. (2024) New Analysis shows Student of Color More Likely to Be Cut from Online Learning https://nul.org/news/new-analysis-shows-students-color-more-likely-be-cut-online-learning

- O*Net Online. Occupation overviews such as project management specialists. Retrieved from https://www.onetonline.org/link/summary/13-1082.00

- Ortagus, J. C. (2023). The Relationship Between Varying Levels of Online Enrollment and Degree Completion. Educational Researcher, 52(3), 170-173. https://doi.org/10.3102/0013189X221147522

- Schmitt, N. (2024, May 24 & June 24). CoE for Cybersecurity. (Personal interviews).

- Security Vulnerabilities. (2023). CVEs published in 2023. https://www.cvedetails.com/vulnerability-list/year-2023/vulnerabilities.html?page=1&order=1&trc=29066&sha=ab555954d1356db80fdfd2db692ecdbe5371d4a9

- State Board for Community and Technical Colleges. (2024). Field guide 2024, Bates Technical College. Retrieved from Bates Technical College | Field Guide 2024 | SBCTC

- State Board for Community and Technical Colleges. (2023). 2020-2030 Strategic Plan Update. Retrieved from https://www.sbctc.edu/2020-2030-strategic-plan-update

- Tisdale, N. (2024, February 12). The hidden injustice of cyberattacks. Wired. Retrieved June 28, 2024, from https://www.wired.com/story/cybersecurity-marginalized-communities-problem/#:~:text=Cyberattacks%20and%20criminal%20scams%20can,support%20to%20better%20protect%20themselves

- Wang, K. (2024, June 28 & July 1). Mentors in Tech Founder, WA State Board of Ed Member. (Personal interviews).

- Washington Student Achievement Council. (2024). 2024 Strategic Action Plan. Retrieved from https://www.wa.gov/2024.Strategic-Action-Plan.pdf

- Washington Student Achievement Council. (2025). 2025 Strategic Action Plan. Retrieved from https://www.wa.gov/2025.SAP_.pdf

- Washington Technology Solutions. 24-26 strategic planning and service action page. Retrieved from https://watech.wa.gov/strategy/strategic-planning

- Washington Technology Solutions personas developed in collaboration with WA Center of Excellence for Cybersecurity, provided by the center May 24, 2024.

- Workforce Central. ICT and cybersecurity workers pathways information. Retrieved from https://www.workforce-central.org

- Workforce Development Council of Seattle-King County. Career information; Information Technology. Retrieved from https://www.seattle-kingcounty.org

Applied Baccalaureate Degree Supply/Demand Gap Rubric for Colleges

The goal of this rubric is to help you build a program that will meet the needs of your community. We have given you options about the information you can use to support the need for your new program. Also, the guidelines for estimating the supply/demand gap are similar to the ones we use for other program applications. We hope this makes the rubric more familiar to you. If not, contact the Director of Transfer Education at SBCTC for further information.

The application needs to show the information below for program approval:
- <u>employers demand* the level of technical training proposed</u> within the program, making it cost-effective for students to seek the degree;
- <u>lead to high wage-earning jobs</u>; and
- the <u>proposed program fills a gap in options available for students</u> because it is not offered by a public four-year institution of higher education in the college's geographic area.

College Name: Bates Technical College	
Program Name: BAS in Computer Information Security & IT Project Management	
Select one: Existing Occupation <u>X</u> or Emerging Occupation ☐	
*If local demand/supply information is available for the specified degree program and target occupations(s)***	

For demand: Provide local/regional demand data for the targeted occupation job title(s) from traditional labor market data, industry data, trade association data, or other transactional data. (Provide absolute numbers, not just percentages)

We were able to access job posting data using keywords that we believe our proposed program would best align with. There were 338 unique postings in Pierce, King, Thurston and Kitsap Counties between January 2023 and May 2024. Many of the jobs are hybrid or remote, which is why we chose to start with a broad search, since the actual number of jobs our graduates may be eligible could be spread across the state, nation or globe. More than half of these jobs explicitly require a bachelor's degree.

Common Job Title/Search Terms	Unique postings	Number of employers	Median Advertised Salary	Bachelor's Degree Required?	Primary SOC Code Ties
IT Project Managers	238	119	$51.82/hr	56% yes	Computer Occupations, all other, Project Management Specialists
IT Project Coordinator, Lead, Specialists, Consultants, Analysts and Assistants (excludes Project Manager)	349	102	$52.80/hr	60% yes	Project Managements Specialists, Computer Occupations All Other, Computer User Support Specialists

Applied Baccalaureate Degree Supply/Demand Gap Rubric for Colleges

	IT Compliance Specialist, Managers, or Analysts	47	25	$51.57/hr	53% yes	Compliance Officers, Computer Occupations All Other, Managers, All other, Accountants and Auditors
	IT Auditors	59	32	$49.22/hr	59% yes	Information Security Analyst, Accountants and Auditors
	IT Audit Coordinator, Leader, Intern, Analysts, Specialists, Associates, and Consultants (excludes IT Auditor)	36	20	$49.48/hr	69% yes	Computer Occupations, all other, Accountants and Auditors, Information Security Analysts, Computer and Information Systems Managers
	IT Risk and Assurance Analysts, Managers, and Consultants	14	13	Not enough data	64% yes	Financial Risk Specialists, Information Security Analysts
	IT Governance Analysts and Specialists	64	25	$73.11/hr	59% yes	Computer occupations, all others, Information Security Analysts, Market Research Analysts and Marketing Specialists
	Threat Analysts, Cyber Threat Analysts, Network Threat Support Specialists	118	38	$79.51/hr	64%	Computer occupations, all others, Information Security Analysts

These are all jobs within a much larger set of occupations, the occupational outlooks for each of these industries show significant growth in the next 5-10 years.

A review of job posting analytics using the same search terms as for the table above, but narrowed down for the Seattle-Tacoma CSA found the following statistics for the timeframe of January 2023- July 2024

- 778 unique job postings, 293 employers competing, $114,900 Median posted salary

- o 58% of these jobs listed a bachelor's degree as the minimum education
- o 90 jobs required 2 or fewer years of experience, average advertised salary for these positions: $97,500
- o 392 jobs requested 2-5 years of experience
- o 185 positions marked remote or hybrid, 577 did not specify, 16 marked not remote.
- 234 unique posts for an IT Project Manager, 510 total posts
  - o 549 posts asked for Project Management skills
  - o 211 posts asked for Project Management Professional Certification or similar
- 59 posts for an IT Governance Manager
- 25 posts for an IT PMO Project Manager
- 24 posts for an IT Compliance Manager
- 18 posts for an IT Audit Manager
  - o 116 posts asked for auditing skills
  - o 50 posts asked for Certified Information System Auditor (CISA) qualification
- 18 posts for an IT Project Coordinator
- 15 IT Governance Analyst

Occupation Title	SOC Code	Bachelor's Degree Required?	Projected Growth, 2030 (WA)	Average Annual Wages (WA)	WA State Employment (2022)	Predicted Annual Openings 2020-30 (WA)
IT Project Managers	15-1299	38%	30%	$128,200	14,060	2,030
Computer and Information Systems Managers	11-3021	48%	31%	$202,190	15,750	2,330
Computer Systems Analysts or Specialists	15-1211	Not stated	27%	$128,710	21,180	2,800

Applied Baccalaureate Degree Supply/Demand Gap Rubric for Colleges

	Information Security Analysts	15-1212	53%	48%	$142,940	3,520	650

For supply gap: Provide data on the number of programs and the number of annual program graduates for all four-year colleges that supply your region. Is the number of current annual graduates insufficient to meet current and projected demand? (The result of demand minus supply).	Supply/Demand Gap analysis of IT occupations mapped to CIP 11.1003, awards granted in the Seattle-Tacoma CSA, via JobsEQ, data accessed 8/30/2024.

Occupation Search Keyword	SOC	Awards	Target Range	Annual Demand	Award Gap
Information Security Analysts	15-1212	163	293-407	407	(131)
Computer and Information Systems Managers	11-3021	443	780-1,141	1,141	(337)
Computer Network Support Specialists	15-1231	96	170-279	279	(74)
Computer Network Architects	15-1241	80	144-219	219	(64)
Network and Computer Systems administrators	15-1244	136	240-378	378	(105)

Looking more broadly at the state, we found there were 18 graduates from a program focused on IT Project Management, via Central Washington University. This is a new specialization from their Bachelor of Science in IT Management. According to their website, this program is offered at their Ellensburg campus, fully online or hybrid at satellite locations. We found the following detail online: "All specializations can be completed at Ellensburg, CWU-Pierce County, CWU-Lynnwood, CWU-Des Moines, or 100 percent online. Students at the CWU-Moses Lake, CWU-Sammamish, CWU-Wenatchee, and CWU-Yakima complete all of their ITAM classes 100 percent online." We called CWU and learned that many of these "hybrid" courses are better described as distance education with an instructor in Ellensburg facilitating the lessons while they are streamed in other locations.

Applied Baccalaureate Degree Supply/Demand Gap Rubric for Colleges

<table>
<tr><td></td><td>Occupation Search Keyword</td><td>SOC Code</td><td>Bachelor's Degrees Granted (20-21)</td><td>Anticipated Annual Openings</td><td>Supply/Demand Gap</td><td>Example Programs Contributing Graduates</td></tr>
<tr><td></td><td>Computer Systems Analyst</td><td>15-1211</td><td>895</td><td>2,800</td><td>1,905</td><td>Information Technology, Computer and Information Sciences, etc.</td></tr>
<tr><td></td><td>IT Project Managers, Computer Systems Managers, Information Security Analysts</td><td>11-3021, 12-1299, 15-1212</td><td>4,578 across all disciplines, 18 in IT Project Management</td><td>4,710</td><td>132</td><td>Many STEM fields; Computer Science, Mathematics, Information & Data Sciences, Informatics, etc.</td></tr>
<tr><td></td><td colspan="6">IT Auditors, IT Compliance Officers, IT Project Managers and IT Information Security professionals can come from a variety of backgrounds but must have a mix of technical knowledge and project management and related skills, so we cannot determine numbers of degrees granted for those specifically entering these fields.</td></tr>
<tr><td colspan="7" align="center">OR, if demand information is not available or it is a new/emerging/changing occupation, **</td></tr>
<tr><td>For demand: Provide employer survey results for local demand for the targeted occupation job title(s) to support the demand and education level for the program. <u>Survey requirements are listed below.</u></td><td colspan="6"></td></tr>
<tr><td colspan="7" align="center">OR, if based on a statutory or accreditation requirement, **</td></tr>
<tr><td colspan="7">Select one: Statutory Requirement☐ or Accreditation Requirement ☐</td></tr>
<tr><td>For demand: Provide labor market information on the current education requirements for the job,</td><td colspan="6"></td></tr>
</table>

Applied Baccalaureate Degree Supply/Demand Gap Rubric for Colleges

including evidence of recent openings for requiring or preferring bachelor's degrees or above. Cite the statute or certifying body, your proposed program is based upon that has specified a bachelor's or above in the field is needed.	
For supply gap: Provide employer survey results for local supply for the targeted occupation job title(s) to support that there is a gap or that employers anticipate a gap in the number of qualified applicants that will be available to fill jobs with the new requirements. <u>Survey requirements are listed below.</u>	
* Demand is defined by state law as "***an occupation with a substantial number of current or projected employment opportunities.***" **Applications may include information related to more than one option (i.e., labor market data to support the local demand for the occupation and a local employer survey to support that there is a gap in the number of qualified applicants available to fill jobs).	

Survey Requirements:

To verify/support supply demand your survey should include at least 25 individual employer responses. If there are not 25 employers in the area, you should cover the employers who comprise at least 75% of the identified employment base. Provide a copy of the survey with the aggregated results as an appendix. The **survey must address** the following general questions (you may edit the wording to suit your survey):

(1) Do you have anticipated demand for application job title(s)? (If this is a new or emerging job title, include a brief description of specific job duties.)
(2) If there is demand, how many positions do you currently have open? How many do you anticipate having open in the next 3 years?
(3) Is a bachelor's degree a requirement or preference for this position? Requirement: Y or N Preference: Y or N
(4) Do you have difficulty finding Bachelor's degree level applicants for this position? (If yes- explain)
(5) Will the proposed program assist you in finding qualified applicants to fill the position(s)?