

Utah Valley University
Curriculum Items
Board of Trustees
June 16, 2016

Proposal:

It is proposed that the following be approved:

- Certificate of Proficiency In Unmanned Aircraft Systems (addition)
- Certificate of Proficiency in Application Development (addition)
- Certificate of Proficiency in Data Analytics (addition)
- Certificate of Proficiency in Database Administration and Data Warehousing (addition)
- Certificate of Proficiency in Healthcare Information Technology (addition)
- Emphasis in Application Development to the BS in Information Systems (addition)
- Master of Education restructure with addition of emphasis in Applied Behavioral Analysis (addition and restructure)
- Certificate of Proficiency in Advanced Manufacturing (addition)
- Certificate of Proficiency in National Security Studies (addition)
- Minor in National Security Studies (addition)
- Center for National Security Studies (addition)

Background:

The School of Aviation Sciences at Utah Valley University recognizes the necessity of Utah employers to educate present and potential employees regarding the use of Unmanned Aircraft System (UAS) technology. As of 2013, approximately 70 companies in Utah had jobs related to UAS activities. This rapidly emerging technology is or will be used by a multitude of Utah industries and government entities including aviation, motion pictures and film production, agriculture production and control, law enforcement, fire and rescue operations, and geomatics. The **Certificate of Proficiency in Unmanned Aircraft Systems** will provide students with basic training in the core areas for the operation of unmanned aircraft as operators, pilots, and sensor/payload operators. The program is designed to qualify students for employment in entry-level positions in jobs utilizing UASs. In addition, the certificate is developed to assist employees to advance in their current positions by acquiring new skill sets in UAS increasing their productivity to the employer.

End-user application development is an important trend in software technology. Increasingly, many computer applications are developed not by professional computer scientists but by people who have expertise in other domains supported by computation. End-User Development (EUD) as taught in the **Certificate of Proficiency in Application Development** can be defined as a set of methods, techniques, and tools that allow users of software systems, who are acting as non-professional software developers, at some point to create, modify, or extend a software artifact. Often, professional programmers lack domain knowledge or regular development cycles are too slow to meet fast-changing user requirements. End-user development is built on the concepts of collaboration and participatory software design. Most web applications are created through end-user application development. Many frameworks support end-user development of mobile applications. This certificate would allow employees who do not have a degree to obtain a credential to advance their career prospects. A certificate would also allow those individuals who earned degrees outside the computing fields to obtain a credential in Application Development to increase

their value to their current or future employers. This would benefit these individuals so that they do not have to earn a second bachelor's degree just to get a credential in Application Development.

A **Certificate of Proficiency in Data Analytics** would allow employees who do not have a degree to obtain a credential to advance their career prospects and allow those individuals who earned degrees outside the computing fields to obtain a credential in Data Analytics to increase their value to their current or future employers. The area of business intelligence and data analytics is relatively new and covers several job profiles, including: Data Scientists and Data Analysts, Business Intelligence Analysts, Data Warehousing Specialists, and Computer Systems Analysts. This certificate would use existing courses and provide a fast-track program for individuals to be retrained in a high-demand area (business intelligence, data analytics, data science, and big data) and to find entry-level employment in this growing field.

Many students outside of the information systems major have expressed interest in taking and have taken database classes taught by the information systems program. In particular, finance, marketing, and statistics students have shown an interest in DADW. **The Certificate of Proficiency in Database Administration and Data Warehousing** would allow these students to gain a formal credential for their work. There are also many employment prospects for those knowledgeable in DADW, with over one thousand job listings requiring database knowledge.

The healthcare industry is currently undergoing change related to the implementation of information systems like Electronic Medical Records (EMR) due to mandated laws and regulations. Therefore, educational programs that can provide workers with a combination of clinical knowledge and technical skill are in high demand. A **Certificate of Proficiency in Healthcare Information Technology** would allow non-students who do not have a degree to obtain a credential to advance their career prospects. A certificate would also allow those individuals who earned degrees outside the computing fields to obtain a credential in healthcare information technology in order to increase their value to their current or future employers. According to the BLS, employment of health information technicians is projected to increase an estimated 22% between 2012 and 2022, a rate faster than the national average for all professions.

An **Emphasis in Application Development in the Information Systems BS** would prepare students for jobs that straddle the job profiles of computer systems analysts and computer programmers. Student are interested in end-user application development (EUAD) as evidenced that an average of 29 per year for the past three years enrolled in an elective PHP Web Application Development course, and an average of 20 students per year for the past three years enrolled in a Mobile Application Development course. End-user application development is an important trend in software technology. Increasingly many computer applications are being written not by professional computer scientists but by people with expertise in other domains supported by computation. End-User Development (EUD) can be defined as a set of methods, techniques, and tools that allow users of software systems, who are acting as non-professional software developers, at some point to create, modify, or extend a software artifact. Often professional programmers lack domain knowledge or regular development cycles are too slow to meet fast changing user requirements. End-user development is built on the concepts of collaboration and participatory software design. Most web applications are created through end-user application development. Many frameworks support end-user development of mobile applications.

The School of Education at Utah Valley University requests a name change for the program as a whole, from "Master of Education, Curriculum and Instruction" to "Master of Education." A change is also requested for what are currently "options" within the M.Ed. to "emphases" in this program. A new area of **Emphasis in Applied Behavior Analysis (ABA)** is also requested. This change is necessary for the

students completing the program options in order to receive a notation on their diploma indicating that they completed their degree in a specialized area. This is not currently available to students graduating from the Master of Education program. Coursework in the new ABA emphasis will qualify students to be a Board Certified Behavior Analyst (BCBA). Because this certification is a new requirement for positions in behavior analytic support, there is a growing demand for BCBA's in Utah and throughout the United States. The state of Utah has the second-highest prevalence of autism in the nation (1 in 54), and Utah County has the highest rate in Utah: 1 in 40. In 2000, 642 or 1.20% of children ages 3-21 who received special education services in Utah have autism. In 2012-2013, 4,858 or 6.2% of children with disabilities ages 3-21 who received special education services have autism. Utah is one of eight states to receive a rating of "Needs Intervention" from the U.S. Department of Education for services in special education as of the 2010/2011 school year. This rating indicates that Utah needs to improve the quality and quantity of professionals and services provided to students with disabilities, namely those on the autism spectrum. Federal Medicaid laws were recently clarified to support treatment of individuals with autism up to the age of 22. Agencies in Utah are scrambling to meet the demand of an additional 4000 individuals who now qualify for services. Requirements for Medicaid services indicate a BCBA must oversee programming. In part due to these updates, Utah now has state licensure for behavior analysts. The completion of a BCBA is one of the required steps in the licensure process.

The Certificate of Proficiency in Advanced Manufacturing is designed to provide entry-level manufacturing technician skills that are needed in expanding the manufacturing industry in Utah Valley. Although the term "advanced" might be confusing for a program providing entry-level skills, nationally this is the term that is being used. The program focuses on the basic skills used in advanced manufacturing processes expanding across the nation. The components of the certificate will include basic manufacturing skills with hands-on activities on equipment used in local facilities. Graduates of this certificate will have a basic understanding of advanced manufacturing operations with an emphasis on solving problems in the organization. While this program offers an entry-level certification for individuals pursuing a career in manufacturing, it has been designed to enable individuals the opportunity to continually expand and upgrade their applied skills as well as to maintain a thorough mastery of evolving manufacturing technologies.

National security is a vital and emerging academic discipline and career path. Institutions across the country have added successful courses and programs in national security, in part to support an emergent national security sector. Utah has experienced tremendous growth in both the public and private national security sector, with companies such as Boeing, ATK, and Northrup Grumman and with major industry supply chain players like Exelis, Janicki, and Rockwell Collins along with installations such as the National Security Agency (NSA) Utah Data Center and Hill Air Force Base. UVU's **Certificate of Proficiency in National Security Studies** (NSS), in collaboration with UVU's cybersecurity and homeland security programs, will enable Utah to meet the employment needs of the growing National Security field. Whether students are interested in counterterrorism, homeland security, intelligence gathering and analysis, cybersecurity, foreign relations, law and politics, diplomacy, international development, or criminal justice, the certificate of proficiency will provide the education and skills needed to succeed in these professions.

The **Minor in National Security Studies** will directly feed a growing and vibrant national security sector as the only national security program in the state. Careers related to national security are among the fastest growing professions in the country, with opportunities in both the public and private sectors. UVU's NSS Minor will provide students with the skills and experience required to fill or advance in high-demand and high-paying national security positions in government, the defense industry, the private sector, research

institutions, and non-governmental and international organizations. Students will also be assisted in preparing for academic careers and advanced degree programs, such as law, international relations, public administration, and political science.

There is significant student interest and demand for a **Center for National Security Studies**. More than 50 students contacted the NSS director via email, office visit, or phone call to express interest in national security opportunities at UVU. The director of the UVU Veterans Center estimates that many of UVU's 700+ veterans will be interested in national security courses, events, and career opportunities. Similarly, UVU's ROTC leadership estimates that many of their cadets would be interested in national security studies classes, events, activities, and careers. In mid-January 2016 a student in the NSS Director's class started a National Security Studies Society and chartered it as a UVU club. The club already has more than 80 members. In February 2016, the CIA held a career information session, at which more than 150 students attended. In March 2016, the NSS director gave a speech at which more than 70 students attended. The department and NSS director continue to receive frequent questions about national security courses and other opportunities.

Recommendation:

The President and the Senior Vice-President for Academic Affairs recommend that the Board of Trustees approve the proposed actions as summarized above and detailed in the attached documents.

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah Valley University
Proposed Title: Certificate of Proficiency in Unmanned Aircraft Systems
School or Division or Location: College of Aviation and Public Services
Department(s) or Area(s) Location: School of Aviation Sciences
Recommended Classification of Instructional Programs (CIP) Code¹ (for new programs): 49.0199
Proposed Beginning Date (for new programs): Fall 2017
Institutional Board of Trustees' Approval Date: Pending

Regents' General Consent Calendar Items	
<i>R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar</i>	
SECTION NO.	ITEM
5.1.1 <input type="checkbox"/>	Minor*
5.1.2 <input type="checkbox"/>	Emphasis*
5.2.1 <input checked="" type="checkbox"/>	Certificate of Proficiency*
5.2.3 <input type="checkbox"/>	Graduate Certificate*
5.4.1 <input type="checkbox"/>	New Administrative Unit
	Administrative Unit Transfer
	Administrative Unit Restructure
	Administrative Unit Consolidation
5.4.2 <input type="checkbox"/>	New Center
	New Institute
	New Bureau
5.5.1 <input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2 <input type="checkbox"/>	Program Transfer
	Program Restructure
	Program Consolidation
5.5.3 <input type="checkbox"/>	Name Change of Existing Programs
5.5.4 <input type="checkbox"/>	Program Discontinuation
	Program Suspension
5.5.5 <input type="checkbox"/>	Reinstatement of Previously Suspended Program
	Reinstatement of Previously Suspended Administrative Unit

*Requires "Section V: Program Curriculum" of Abbreviated Template

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: *MM/DD/YEAR*

Printed Name: Dr. J. Olson, Sr. Vice President - Academic Affairs

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

Program Request - Abbreviated Template
Utah Valley University
Certificate of Proficiency in Unmanned Aircraft Systems
05/19/2016

Section I: Request

The School of Aviation Sciences in the College of Aviation and Public Services at Utah Valley University requests approval for a Certificate of Proficiency in Unmanned Aircraft Systems effective Fall 2017.

Section II: Need

The School of Aviation Sciences at Utah Valley University recognizes the necessity of Utah employers to educate present and potential employees regarding the use of Unmanned Aircraft System (UAS) technology. A feasibility study completed in May of 2015 and approved the same month by the Academic Affairs Council² demonstrated the need and labor market demand for qualified personnel to operate UAS in Utah. As of 2013 approximately 70 companies in Utah had jobs related to UAS activities.³ This rapidly emerging technology is or will be used by a multitude of Utah industries and government entities including aviation, motion pictures and film production, agriculture production and control, law enforcement, fire and rescue operations, and geomatics.

The certificate of proficiency will increase the employment opportunity as graduates are qualified to operate these primarily small UAS in a safe and legal manner. Graduates already employed will have increased opportunity for internal advancement due to the acquisition of a new skill set in a fast emerging technological field. Initial comments from the insurance industry are indicative that companies employing graduates of this program may receive beneficial insurance rates for operations of its small unmanned aircraft.

This certificate provides students with basic training in the core areas for the operation of unmanned aircraft as operators,⁴ pilots, and sensor/payload operators. The program is designed to qualify students for employment in entry level positions as an operator or payload/sensor operator in a job utilizing UASs. In addition, the certificate is developed to assist employees to advance in their current positions by acquiring new skill sets in UAS increasing their productivity to the employer.

Utah Valley University will be the only USHE institution offering such a program at this time. This certificate prepares students to complete the Federal Aviation Administration's aeronautical knowledge test such that they could qualify as operators (pilots for small unmanned aircraft). Pilots for other unmanned aircraft will

² See Utah Valley University Academic Affairs Council Minutes of May 28, 2015, retrieved from Karen Cushing, Administrative Assistant, Senior Vice President for Academic Affairs.

³ Utah Governor's Office of Economic Development (GOED), 2014 Annual Report and Business Guide accessible at <http://business.utah.gov/wp-content/uploads/AnnualReportWEBwGraph1.pdf>

⁴ In the proposed FAA regulations, pilots of a small UAS would be considered "operators". They would be required to, among other things, pass an initial aeronautical knowledge test, be vetted by the Transportation Security Administration, obtain an unmanned aircraft operator certificate with a small UAS rating (like existing pilot airman certificates, never expires), pass a recurrent aeronautical knowledge test every 24 months, and be at least 17 years old.

require training in the same disciplines. UVU will be positioned to train these prospective students to the anticipated standards of the FAA knowledge exam to make them more employable in Utah.

This proposed certificate program is directly supportive of Governor Gary Herbert's commitment to economic and educational development statewide. "Governor Herbert has an integrated ten-year plan for education and economic development. The plan leads UVU to achieving its state goal that 66% of all working-age Utahans will hold a post-secondary degree or certificate by 2020."⁵

Governor Herbert envisions state growth for the purposes of becoming a premier global business destination. His office mandate was to ". . . provide rich business resources for the creation, growth, and recruitment of companies to Utah and to increase tourism and film production in the state. GOED accomplishes this mission through the administration of programs that are based around targeted industries or "economic clusters" that demonstrate the best potential for development. GOED utilizes state resources and private sector contracts to fulfill its mission."⁶ The certificate program is directly supportive of this mandate and will be accomplished utilizing all appropriated funds with some initial one-time expenditures and others ongoing.

Section III: Institutional Impact

The Certificate of Proficiency in UAS is a stand-alone, newly developed certificate program under the authority of the academic chair. It is not an expansion of an existing program and will not affect the existing administrative structure. A full-time tenure track faculty member designated by the academic chair will be the program director. Qualified adjunct instructors will be supplemented by qualified full-time faculty to teach the courses.

The certificate program is designed to serve students attending part-time as those individuals presently working in industry would not be able to attend two full semesters. It will be marketed to individuals seeking a certificate that will increase their skill set in their current jobs as companies begin to incorporate UASs into their mission (e.g. law enforcement; movie, television, and films) and to those seeking a new challenge entering a career as an operator (pilot) or sensor/payload operator specializing in operation of UAS. The anticipated student demand will be from the non-defense related private sector UAS industry in Utah as described in the GOED's economic report mentioned above in which approximately 70 companies had jobs related to UAS activities. The program will serve students who choose to use these UAS courses as electives in the AAS and BS in Aviation Science and contingent upon modifications to include as electives in the AS degree.

There is no history to draw upon for expected student demand, but the economic impact of the UAS industry (described above) supports anticipated growth. The proposed certificate would allow the School of Aviation Sciences to grow by targeting new segments within Utah industries and government entities utilizing UAS including: aviation, motion pictures, television and film production, agriculture production, law enforcement, fire, disaster and rescue, oil and gas exploration, aerial imaging and mapping, telecommunication, environmental monitoring, and geomatics.

⁵ Utah Governor Gary Herbert. Retrieved May 22, 2015 from <http://www.utah.gov/governor/docs/education/PACE2013Booklet.pdf>

⁶ GOED, <http://business.utah.gov/news/local-organizations-partner-to-form-mountain-west-unmanned-systems-alliance/>

The projected number of graduates in the proposed certificate program for years one to five is 0, 15, 25, 45 and 45, respectively.

New physical facilities or modification of existing facilities will not be required. An open area for operating the unmanned aircraft will be located and appropriate netting and fencing will be necessary for safe and legal operation. Other open areas authorized for use by the Federal Aviation Administration for hands-on training will be located and utilized.

Equipment necessary to initiate the program will be the acquisition of multiple UAS (multi-rotor and fixed wing), spare parts, two-way radios, generator, netting and fencing for flight area, and trailer for transportation of UAS and equipment to designated areas.

Courses AVSC 1400, 1410, and 1420 may be delivered online or in-person. Courses AVSC 1430, 1440, and 1450 may be delivered in-person or in-person and partially online. If AVSC 1430, 1440, and 1450 are delivered partially online there is a residency requirement for each that requires students to complete some hands-on training. Courses AVSC 1460 and AVSC 1470 must be completed in-person

Section IV: Finances

Utilizing existing trained salaried faculty and backfilling some existing AVSC courses with qualified adjunct faculty, this program requires some an allocation of university funds beyond projected program tuition revenue to support instructional expenses. In anticipation of this program, in April 2016 UVU allocated \$95,804 ongoing and \$49,510 one-time funds to the Department of Aviation Science. This additional funding is sufficient support the projected student enrollments.

Section V: Program Curriculum

Course Prefix and Number	Title	Credit Hours
Required Courses		
AVSC 1400	Survey of Unmanned Aircraft Systems	3
AVSC 1410	Aeronautical Knowledge for Small Unmanned Aircraft Systems	3
AVSC 1420	Systems and Technology of Unmanned Aircraft	3
AVSC 1430	Small Unmanned Aircraft Systems Operations	3
AVSC 1440	Safety and Crew Resource Management for UAS	3
AVSC 1450	Unmanned Aircraft Systems Ethics and Professionalism	2
AVSC 1460 or AVSC 1470	Small Unmanned Aircraft Systems Flight (1.0) or Remote Unmanned Aircraft Systems Flight (1.0)	1
Total Number of Credits		18

Program Schedule

Fall of First Year (Course Prefix and Number)	Course Title	Credit Hours
AVSC 1400	Survey of Unmanned Aircraft Systems	3
AVSC 1410	Aeronautical Knowledge for Small Unmanned Aircraft Systems	3
	Semester total:	6
Spring of First Year (Course Prefix and Number)	Course Title	Credit Hours
AVSC 1420 Block A	Systems and Technology of Unmanned Aircraft	3
AVSC 1430 Block B	Small Unmanned Aircraft Systems Operations	3
	Semester total:	6
Summer of First Year (Course Prefix and Number)	Course Title	Credit Hours
AVSC 1440 Block A	Safety and Crew Resource Management for UAS	3
AVSC 1450 Block A	Unmanned Aircraft Systems Ethics and Professionalism	2
AVSC 1460 or 1470 Block B	Small Unmanned Aircraft Systems Flight or Remote Unmanned Aircraft Systems Flight	1
	Semester total:	6
	Year total	18

This program curriculum is submitted with the intent that upon approval of this certificate program, the current UAS course, AVSC 2750, Unmanned Aircraft Systems, will be deleted.

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah Valley University
Proposed Title: Certificate of Proficiency in Application Development
School or Division or Location: College of Technology and Computing
Department(s) or Area(s) Location: Information Systems and Technology
Recommended Classification of Instructional Programs (CIP) Code¹ (for new programs): 11.0202
Proposed Beginning Date (for new programs): Fall 2017
Institutional Board of Trustees' Approval Date: Pending

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
<i>R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar</i>		
SECTION NO.		ITEM
5.1.1	<input type="checkbox"/>	Minor*
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*Requires "Section V: Program Curriculum" of Abbreviated Template

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: MM/DD/YEAR

Printed Name: Jeffery Olson

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

Program Request - Abbreviated Template
Utah Valley University
Certificate of Proficiency in Application Development
5/19/2016

Section I: Request

The Department of Information Systems and Technology in the College of Technology and Computing at Utah Valley University requests approval to offer a Certificate of Proficiency in Application Development effective Fall 2017.

Section II: Need

Students are interested in end-user application development (EUAD), and no other post-secondary school in Utah offers a Certificate of Proficiency in Application Development. Almost 20% of employees working in application development do not currently have a degree.² Many employment prospects exist for people who are knowledgeable in end-user application development. Providing a certificate of proficiency would provide those individuals with college credential for higher-level employment as well as higher salaries.

No other post-secondary school in Utah offers a Certificate of Proficiency in Application Development. Currently, no end-user application development (EUAD) programs exist at the undergraduate level at any USHE school or at BYU. There are no EUAD minors at any school in Utah. One school offers two related associate's degree emphasis: LDS Business College offers an Associate of Applied Science (AAS) in Information Technology—Web Development Emphasis and an AAS in Information Technology—Mobile Application Development. Two master's degrees (Utah State University and University of Utah) offer some EUAD content.

End-user application development is an important trend in software technology. Increasingly, many computer applications are developed not by professional computer scientists but by people who have expertise in other domains supported by computation. End-User Development (EUD) can be defined as a set of methods, techniques, and tools that allow users of software systems, who are acting as non-professional software developers, at some point to create, modify, or extend a software artifact.³ Often, professional programmers lack domain knowledge or regular development cycles are too slow to meet fast-changing user requirements. End-user development is built on the concepts of collaboration and participatory software design. Most web applications are created through end-user application development. Many frameworks support end-user development of mobile applications.

There are likely 18 times more end-user developers than professional programmers.⁴ A July 2011 Gartner report indicated that nonprofessional developers will build at least 25% of new business applications by 2014.⁵

² Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections (Education/Training Level, Educational Attainment); National Center for Education Statistics (Typical Instructional Programs).

³ H. Lieberman, F. Paternò, and V. Wulf, Eds., *End-User Development*, Human Computer Interaction Series, Springer, New York, NY, USA, 2006

⁴ C. Scaffidi, M. Shaw, and B. Myers, "Estimating the numbers of end users and end user programmers," in *Proceedings of the IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC '05)*, pp. 207–214, Dallas, Tex, USA, September 2005.

A Certificate of Proficiency in Application Development would allow employees who do not have a degree to obtain a credential to advance their career prospects. A certificate would also allow those individuals who earned degrees outside the computing fields to obtain a credential in Application Development to increase their value to their current or future employers. This would benefit these individuals so that they do not have to earn a second bachelor's degree just to get a credential in Application Development.

The field of application development straddles the roles of computer systems analyst and software developer/computer programmer.

Computer Systems Analysts:

Analyze science, engineering, business, and other data processing problems to implement and improve computer systems. Analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations. May analyze or recommend commercially available software. The median wages for Computer System Analysts is 82,700 in the US and 71,400 in Utah for 2014. Job Outlook is much faster than average growth between 2012 and 2022 of 25% in the US and 28% in Utah.⁶

A bachelor's degree in a computer or information science field is common, although not always a requirement. Some firms hire analysts with business or liberal arts degrees who have skills in information technology or computer programming.⁷

Software Developers, Applications:

Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team. May supervise computer programmers. Median wages were 95,510 in the US and 87,200 in Utah for 2014. Job Outlook is much faster than average growth between 2012 and 2022 of 23% in the US and 41% in Utah. A bachelor's degree in a computer or information science field is common, although not always a requirement. Some firms hire analysts with business or liberal arts degrees who have skills in information technology or computer programming. More than 11% of employees working in the App Development field and 18% working as programmers have no college credential, but these employees could increase their career prospects with a certification.⁸

This program would strengthen existing programs (AAS in Information Systems and Technology and the BS in Information Systems with the other three emphases: Business Intelligence Systems, Healthcare Information Systems, and Information Security Management), providing an alternative pathway for students. This new certificate of proficiency would use existing courses and provide a fast-track program for individuals to be retrained in a high-demand area and to find entry-level employment in this growing field.

⁵ Paterno, F., 2013, End User Development: Survey of an Emerging Field for Empowering People, ISRN Software Engineering, <http://dx.doi.org/10.1155/2013/532659>.

⁶ CareerOneStop, U.S. Department of Labor, www.careerinfonet.org

⁷ Occupational Outlook Handbook, <http://www.bls.gov/ooh/computer-and-information-technology/computer-systems-analysts.htm>

⁸ CareerOneStop, U.S. Department of Labor, www.careerinfonet.org,

http://www.careerinfonet.org/occ_rep.asp?next=occ_rep&Level=&optstatus=11111111&jobfam=15&id=1&nodeid=2&soccode=151132&menuMode=&stfips=49&x=51&y=16 (Occupational Outlook Handbook, <http://www.bls.gov/ooh/computer-and-information-technology/computer-systems-analysts.htm>)

Section III: Institutional Impact

The Certificate of Proficiency in Application Development will consist of existing courses. No new administrative structures will be needed. The program will be housed in the Information Systems and Technology Department, which teaches a majority of the courses for the certificate. End-user application development (EUAD) is a growth field in business and industry in the Utah technology sector, especially in Utah County.

Most of the courses will be offered face-to-face or hybrid delivery both Fall and Spring. Some specialized upper-division courses may be offered only once a year depending on demand. Currently, the classes in this certificate are not offered online.

Section IV: Finances

No new funds are required. All required courses and two elective courses are currently being taught, and sufficient capacity exists to absorb students who choose to pursue this certificate. The other two elective courses are being developed and will be taught as part of the proposed emphasis in Application Development for the B.S. in Information Systems program. Beyond the costs associated with the emphasis, no additional costs will be incurred for offering elective courses for this certificate.

Section V: Program Curriculum

*****THIS SECTION OF THE TEMPLATE REQUIRED FOR EMPHASES, MINORS, AND CERTIFICATES ONLY*****

Matriculation Requirements:

Web Design Recommended Prerequisite

INFO 2420 Web Application Design (3.0)

or DGM 2120 Web Essentials (3.0)

Other INFO or IT Prerequisites (depending on elective)

All Program Courses (with New Courses in Bold)

Course Prefix and Number	Title	Credit Hours
Required Courses		
INFO 1200 or CS 1400	Computer Programming I for IS/IT or Fundamentals of Programming	3
INFO 2410	Database Fundamentals	3
INFO 3420	Web Systems Development	3
INFO 3422	PHP Web Application Development	3
INFO 4420	Mobile Business Application Development	3
Sub-Total		15
Elective Courses		
	Choose 3 credits from the following courses:	3
INFO 2200	Computer Programming II for IS/IT (3.0)	
INFO 3426	Web Content Management Systems Site Development (3.0)	
INFO 4422	Advanced PHP Web Application Development (3.0)	

Course Prefix and Number	Title	Credit Hours
INFO 4425	Web Application Security (3.0)	
Sub-Total		3
Total Number of Credits		18

Program Schedule

Summer of First Year	Course Title	Credit Hours
INFO 1200	Computer Programming for IS/IT	3
INFO 2410	Database Fundamentals	3
Semester total:		6
Fall of First Year	Course Title	Credit Hours
INFO 3420	Web Systems Development	3
INFO 4420	Mobile Business Application Development	3
Semester total:		6
Spring of First Year	Course Title	Credit Hours
INFO 3422	PHP Web Application Development	3
Elective	Elective	3
Semester total:		6

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah Valley University
Proposed Title: Certificate of Proficiency in Data Analytics
School or Division or Location: College of Technology and Computing
Department(s) or Area(s) Location: Information Systems and Technology
Recommended Classification of Instructional Programs (CIP) Code¹ (for new programs): 52.1301
Proposed Beginning Date (for new programs): Fall 2017
Institutional Board of Trustees' Approval Date: Pending

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
<i>R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar</i>		
SECTION NO.		ITEM
5.1.1	<input type="checkbox"/>	Minor*
5.1.2	<input type="checkbox"/>	Emphasis*
5.2.1	<input checked="" type="checkbox"/>	Certificate of Proficiency*
5.2.3	<input type="checkbox"/>	Graduate Certificate*
5.4.1	<input type="checkbox"/>	New Administrative Unit
	<input type="checkbox"/>	Administrative Unit Transfer
	<input type="checkbox"/>	Administrative Unit Restructure
	<input type="checkbox"/>	Administrative Unit Consolidation
5.4.2	<input type="checkbox"/>	New Center
	<input type="checkbox"/>	New Institute
	<input type="checkbox"/>	New Bureau
5.5.1	<input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2	<input type="checkbox"/>	Program Transfer
	<input type="checkbox"/>	Program Restructure
	<input type="checkbox"/>	Program Consolidation
5.5.3	<input type="checkbox"/>	Name Change of Existing Programs
5.5.4	<input type="checkbox"/>	Program Discontinuation
	<input type="checkbox"/>	Program Suspension
5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

*Requires "Section V: Program Curriculum" of Abbreviated Template

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: MM/DD/YEAR

Printed Name: Jeffery Olson

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

Program Request - Abbreviated Template
Utah Valley University
Certificate of Proficiency in Data Analytics
5/20/2016

Section I: Request

The Department of Information Systems and Technology in the College of Technology and Computing at Utah Valley University requests approval to offer a new Certificate of Proficiency in Data Analytics effective Fall 2017.

Section II: Need

Of the 192 students who major in Information Systems, 133 select the Business Intelligence Systems emphasis. This number indicates that students are interested in the area of business intelligence and data analytics (BIDA). No other school in Utah offers significant BIDA content at the bachelor's undergraduate level except Utah Valley University in the Business Intelligence Systems concentration of the Bachelor of Science in Information Systems. Of the four existing emphases in the BS in Information Systems degree at UVU, Business Intelligence Systems is the most popular emphasis with 70% of the students selecting this area to specialize in. There are also many employment prospects for those knowledgeable in business intelligence and data analytics.

The Certificate of Proficiency in Data Analytics differs from the Minor in Applied Data Analytics in that the CP focuses on depth while the minor focuses on breadth. The CP is made up almost entirely of required classes, while the minor has flexibility built into its electives so Marketing or Statistics or other majors could take the minor. Another difference between the CP and the Minor is that the CP is meant for those without a degree, while the minor is meant to add to a bachelor's degree.

A Certificate of Proficiency in Data Analytics would allow employees who do not have a degree to obtain a credential to advance their career prospects. A certificate would also allow those individuals who earned degrees outside the computing fields to obtain a credential in Data Analytics to increase their value to their current or future employers. This would benefit these individuals so that they do not have to earn a second bachelor's degree just to get a credential in Data Analytics.

Business Intelligence Systems and Data Analytics has developed quickly over the last few years to include the areas of reporting, dashboarding and visualization, data discovery, and predictive analytics built on the foundation of databases, data warehouses, and big data structures. For some practitioners and academics the term business intelligence is the catchall overarching term for the entire field. However, there is a strong trend to apply the term business intelligence to the reporting/dashboarding/visualization aspects of the field; and the term data analytics or data science to the exploratory, predictive analytics, database/data warehousing/big data aspects of the field. Hence the use of the data analytics term to the title of this certificate of proficiency.

The area of business intelligence and data analytics is relatively new and covers several job profiles:

Data Scientists and Data Analysts

Data scientists combine analytical, database, and business skills, to explore big data, spotting trends and leading companies around the world toward lower costs, higher returns and better overall products.² Job Outlook is probably faster than average. The Harvard Business Review recently called data scientists the “sexiest job of the 21st century,” citing a whopping 15,000% increase in job postings from 2011-2012.³ Gartner predicts that of 2 million openings expected over the next three years in the U.S. alone (4 million worldwide), only about one-third will be filled, making analytics software whizzes “a scarce, valuable commodity” that employers will have to fight to hire and retain.⁴ McKinsey predicts that by 2018 the US alone would need 190,000 deep analytical 'data scientists' - and another 1.5 million data-savvy managers to make the big decisions.⁵ Wages of between \$70,000 and \$120,000.

Business Intelligence Analysts focusing on Market Research (*Market Research Analyst, Market Research Specialist, Marketing Analyst, Marketing Consultant, Marketing Forecaster, Marketing Specialist*):

Produce financial and market intelligence by querying data repositories and generating periodic reports. Devise methods for identifying data patterns and trends in available information sources. Analysis of products, markets, and trends. Synthesize current business intelligence or trend data to support recommendations for action. Communicate with customers, competitors, suppliers, professional organizations, or others to stay abreast of business trends. Median wages of \$81,140 in the US. Job Outlook considered “Bright,” that new opportunities for very likely in the future by the American Job Center.⁶ However, CareerOneStop projects growth to be slower than average in the US at 3-9% between 2010 and 2020. The same organization lumps Business Intelligence Analysts in Computer Occupations, All Other in the US and Utah with a projected growth rate of 6% in the US and 12% in Utah between 2010 and 2020.⁷

Data Warehousing Specialists:

Design, model, or implement corporate data warehousing activities. Program and configure warehouses of database information and provide support to warehouse users. Design, implement, or operate comprehensive data warehouse systems to balance optimization of data access with batch loading and resource utilization factors, according to customer requirements. Develop data warehouse process models, including sourcing, loading, transformation, and extraction. Create or implement metadata processes and frameworks. Median wages of 81,140 in the US for 2012. Job Outlook is faster than average growth between 2010 and 2020. Bachelor’s or master’s degree usually needed.⁸

Computer Systems Analysts:

Analyze science, engineering, business, and other data processing problems to implement and improve computer systems. Analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling

² <http://www.networkworld.com/news/2012/060412-data-scientist-259697.html>

³ <http://hbr.org/2012/10/data-scientist-the-sexiest-job-of-the-21st-century/ar/1>

⁴ <http://management.fortune.cnn.com/2013/05/21/big-data-jobs-2/>

⁵ http://www.mckinsey.com/insights/business_technology/big_data_the_next_frontier_for_innovation

⁶ <http://www.mynextmove.org/profile/state/15-1199.08?from=profile>

⁷ http://www.careerinfonet.org/occ_rep.asp?optstatus=011000000&soccode=151199&id=1&nodeid=2&stfips=49&search=Go

⁸ <http://www.mynextmove.org/profile/summary/15-1199.07>

limitations. May analyze or recommend commercially available software. Median wages of 79,700 in the US and 71,300 in Utah for 2012. Job Outlook is faster than average growth between 2010 and 2020 of 22% in the US and 28% in Utah.⁹ Associate's or bachelor's degree usually needed.

Types of positions offered to graduates of business intelligence and data analytics programs include the following: Advanced Analytics Analyst, Analyst, Trade Strategy, Analytics Consultant, Analytics Lead, Marketing Analyst, Risk Analyst, Software Developer, Solution Architect, Business Analyst, Business Intelligence Analyst, Business Planning Analyst, Category Analyst, Consultant, Consultant – Portfolio Analytics, Corporate Data Analyst, Data Analyst, Data Miner, Data Scientist, Executive Associate, Financial Analyst, Human Capital Associate, Informatics Senior Specialist, Lead Analytics Consultant, Management Consultant, Manager, Analytics, Manager, Pricing and Promotion Analytics, Manager, Reporting and Analysis, Managing Consultant, Marketing Analyst, Marketing Database Analyst, Pricing Analyst, Pricing Representative, Procurement Analyst, Procurement Specialist, Research Analyst, Risk Analyst, and Risk Manager.¹⁰

Currently, no business intelligence and data analytics (BIDA) programs at the undergraduate level exist at any USHE school, nor BYU, other than the current business intelligence concentration in the BSIS at Utah Valley University. A minor in Applied Data Analytics at Utah Valley University was approved July 2015. There are no other minors at any other school in Utah in BIDA. One school offers an associate's degree emphasis: LDS Business College offers an Associate of Applied Science in Information Technology—Business Intelligence Emphasis. There are no certificates in data analytics offered at any universities in Utah. Two master's degrees (Utah State University and University of Utah) offer BIDA content.

This program would strengthen existing programs (AAS in Information Systems and Technology and the BS in Information Systems with these emphases: Business Intelligence Systems, Healthcare Information Systems, and Information Security Management) and the Minor in Applied Data Analytics, providing an alternative pathway for students. This new certificate of proficiency would use existing courses and provide a fast-track program for individuals to be retrained in a high-demand area (business intelligence, data analytics, data science, and big data) and to find entry-level employment in this growing field.

Section III: Institutional Impact

The addition of the Certificate of Proficiency in Data Analytics will, it is hoped, increase enrollments in the courses for the Information Systems major Business Intelligence Systems emphasis, and the new Minor in Applied Data Analytics. No new administrative structures will be needed. The program will be housed in the Information Systems and Technology Department, which teaches a majority of the courses in the certificate. Business intelligence and data analytics is a growth field in business firms and in software development firms that have a positive impact in the Utah technology sector, especially in Utah County. This growing field impacts UVU because the organizations that need people who are trained in data analytics will turn to UVU to find qualified job candidates.

Most of the courses will be offered face-to-face or hybrid delivery both Fall and Spring. Some specialized upper-division courses may be offered only once a year, depending on demand. Currently, the classes in this certificate are not offered online.

⁹ CareerOneStop, U.S. Department of Labor, www.careerinfonet.org

¹⁰ http://analytics.ncsu.edu/?page_id=248

Section IV: Finances

No new funds are required. All of the required courses and the majority of the elective courses are currently being taught, and sufficient capacity exists to absorb students who may choose to pursue this certificate.

Section V: Program Curriculum

*****THIS SECTION OF THE TEMPLATE REQUIRED FOR EMPHASES, MINORS, AND CERTIFICATES ONLY*****

Matriculation Requirements:

Prerequisites may be fulfilled through successful completion of courses listed or by successfully passing challenge exams in areas where challenge exams exist.

Statistics Prerequisite

- STAT 2050 Introduction to Statistical Methods (4.0)
 - or MGMT 2340 Business Statistics I (3.0)
 - or MATH 1040 Introduction to Statistics (3.0)
 - or MATH 2040 Principles of Statistics (4.0)
 - or BESC 3010 Statistics for the Behavioral Sciences (4.0)
- Other CS, DGM, IT, or Marketing Prerequisites (depending on elective)

All Program Courses (with New Courses in Bold)

Course Prefix and Number	Title	Credit Hours
Required Courses		
INFO 2410	Database Fundamentals	3
INFO 3130	Introduction to Applied Data Analytics	3
INFO 3410	Database Systems and Warehousing	3
INFO 4120	Business Intelligence Systems	3
INFO 4130	Data Science and Big Data Analytics	3
Sub-Total		15
Elective Courses		
Choose 3 credits from the following courses:		3
CS 4620	Data Mining (3.0)	
DGM 3750	Media Traffic and Analytics (3.0)	
INFO 4135	Data Security Analytics (3.0)	
INFO 4410	Database Administration (3.0)	
MKTG 3690	Advanced Digital Marketing and Analytics (3.0)	
MKTG 4610	Sales Analytics (3.0)	
STAT 4100	Design of Experiment (3.0)	
STAT 4200	Survey Sampling (3.0)	
Sub-Total		3
Total Number of Credits		18

Program Schedule

Summer of First Year	Course Title	Credit Hours
INFO 2410	Database Fundamentals	3

	Semester total:	3
Fall of First Year	Course Title	Credit Hours
INFO 3130	Introduction to Applied Data Analytics	3
INFO 3410	Database Systems and Warehousing	3
	Semester total:	6
Spring of First Year	Course Title	Credit Hours
INFO 4120	Business Intelligence Systems	3
INFO 4130	Data Science and Big Data Analytics	3
Elective	Elective	3
	Semester total:	9

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah Valley University
Proposed Title: Certificate of Proficiency in Database Administration and Data Warehousing
School or Division or Location: College of Technology and Computing
Department(s) or Area(s) Location: Information Systems and Technology
Recommended Classification of Instructional Programs (CIP) Code¹ (for new programs): 11.0802
Proposed Beginning Date (for new programs): Fall 2017
Institutional Board of Trustees' Approval Date: Pending

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
<i>R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar</i>		
SECTION NO.		ITEM
5.1.1	<input type="checkbox"/>	Minor*
5.1.2	<input type="checkbox"/>	Emphasis*
5.2.1	<input checked="" type="checkbox"/>	Certificate of Proficiency*
5.2.3	<input type="checkbox"/>	Graduate Certificate*
5.4.1	<input type="checkbox"/>	New Administrative Unit
	<input type="checkbox"/>	Administrative Unit Transfer
	<input type="checkbox"/>	Administrative Unit Restructure
	<input type="checkbox"/>	Administrative Unit Consolidation
5.4.2	<input type="checkbox"/>	New Center
	<input type="checkbox"/>	New Institute
	<input type="checkbox"/>	New Bureau
5.5.1	<input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2	<input type="checkbox"/>	Program Transfer
	<input type="checkbox"/>	Program Restructure
	<input type="checkbox"/>	Program Consolidation
5.5.3	<input type="checkbox"/>	Name Change of Existing Programs
5.5.4	<input type="checkbox"/>	Program Discontinuation
	<input type="checkbox"/>	Program Suspension
5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: MM/DD/YEAR

Printed Name: Jeffery Olson

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

Program Request - Abbreviated Template
Utah Valley University
Certificate of Proficiency in Database Administration and Data Warehousing
5/20/2016

Section I: Request

The Department of Information Systems and Technology in the College of Technology and Computing at Utah Valley University requests approval to offer a new Certificate of Proficiency in Database Administration and Data Warehousing effective Fall 2017.

Section II: Need

Students are interested in the area of database administration and data warehousing (DADW). Sixty-three students in Information Systems classes responded to a survey asking about their level of interest in this proposed certificate. Of those, 37 (58%) said they were very interested or somewhat interested in this certificate, stating that they perceived the certificate as a value-added credential in the job market. No other school in Utah offers a certificate of proficiency in DADW. Many students outside of the information systems major have expressed interest in taking and have taken database classes taught by the information systems program. In particular, finance, marketing, and statistics students have shown an interest in DADW. The Certificate of Proficiency in Database Administration and Data Warehousing would allow these students to gain a formal credential for their work. There are also many employment prospects for those knowledgeable in DADW, with over one thousand job listings requiring database knowledge.²

The Certificate of Proficiency in DADW differs from the BS in Information Systems program in that the CP is marketed to students without a degree or as an addition to another major. The certificate would allow employees who do not have a degree to obtain a credential to advance their career prospects. A certificate would also allow those individuals who earned degrees outside the computing fields to obtain a credential in Database Administration and Data Warehousing to increase their value to their current or future employers. This would benefit these individuals so that they do not have to earn a second bachelor's degree just to get a credential in Database Administration and Data Warehousing.

The area of database administration and data warehousing covers several job profiles:

Database Administrators

Administer, test, and implement computer databases, applying knowledge of database management systems. Coordinate changes to computer databases. May plan, coordinate, and implement security measures to safeguard computer databases. Median wages of 78,500 in the US and 80,900 in Utah in 2013. Job Outlook is much faster than average growth between 2012 and 2022 of 15% in the US and 30% in Utah. Bachelor's degree typically needed for entry, however, 23% of employees working in the field have no degree.³

² <http://www.indeed.com/jobs?q=database&l=UT>

³

http://www.careerinfonet.org/occ_rep.asp?next=occ_rep&Level=&optstatus=11111111&jobfam=15&id=1&nodeid=2&soccode=151141&menuMode=&stfips=49&x=41&y=8

Data Warehousing Specialists

Design, model, or implement corporate data warehousing activities. Program and configure warehouses of database information and provide support to warehouse users. Design, implement, or operate comprehensive data warehouse systems to balance optimization of data access with batch loading and resource utilization factors, according to customer requirements. Develop data warehouse process models, including sourcing, loading, transformation, and extraction. Create or implement metadata processes and frameworks. Median wages of 81,140 in the US for 2012. Job Outlook is faster than average growth between 2010 and 2020.⁴

Currently, no Database Administration and Data Warehousing programs exist at the undergraduate level at any USHE school or at BYU. Moreover, there are no Database Administration and Data Warehousing minors at any school in Utah. One school offers an associate's degree emphasis: LDS Business College offers an Associate of Applied Science in Information Technology—Database Administration Emphasis. There are no certificates in database administration or data warehousing offered at any universities in Utah. All of the universities in Utah offer database content as part of bachelor degree programs in information systems or information technology. Two master's degrees (Utah State University and University of Utah) offer database content.

This program would augment existing programs (AAS in Information Systems and Technology and the BS in Information Systems with these emphases: Business Intelligence Systems, Healthcare Information Systems, and Information Security Management), providing an alternative pathway for students. This new certificate of proficiency would use existing courses and provide a fast-track program for individuals to be retrained in a high-demand area and to find entry-level employment in this growing field.

Section III: Institutional Impact

The addition of the Certificate of Proficiency in Database Administration and Data Warehousing will allow people without a degree to gain DADW knowledge and allow those with a degree to return and gain a new skillset. No new administrative structures will be needed. The program will be housed in the Information Systems and Technology Department, which teaches a majority of the courses in the certificate. Database administration and data warehousing is a growth field in business and industry that have a positive impact in the Utah technology sector, especially in Utah County.

Most of the courses will be offered face-to-face or hybrid delivery both Fall and Spring. Some specialized upper-division courses may be offered only once a year, depending on demand. Currently, the classes in this certificate are not offered online.

⁴ <http://www.mynextmove.org/profile/summary/15-1199.07>

Section IV: Finances

No new funds are required. All of the required courses and the majority of the elective courses are currently being taught, and sufficient capacity exists to absorb students who may choose to pursue this certificate.

Section V: Program Curriculum

*****THIS SECTION OF THE TEMPLATE REQUIRED FOR EMPHASES, MINORS, AND CERTIFICATES ONLY*****

Matriculation Requirements:

Prerequisites may be fulfilled through successful completion of courses listed or by successfully passing challenge exams in areas where challenge exams exist.

Statistics Prerequisite (if select INFO 3130 as elective)

- STAT 2050 Introduction to Statistical Methods (4.0)
- or MGMT 2340 Business Statistics I (3.0)
- or MATH 1040 Introduction to Statistics (3.0)
- or MATH 2040 Principles of Statistics (4.0)
- or BESC 3010 Statistics for the Behavioral Sciences (4.0)

Database Prerequisite (if select CS 3720 and CS 4100 as electives)

- CS 3520 Database Theory (3.0)
- CS 3250 Java Software Development (3.0)
- or CS 3260 CsharpNET Software Development (3.0)

All Program Courses (with New Courses in Bold)

Course Prefix and Number	Title	Credit Hours
Required Courses		
INFO 2410	Database Fundamentals	3
INFO 3410	Database Systems and Warehousing	3
INFO 4410	Database Administration	3
INFO 4415	Database Security and Auditing	3
Sub-Total		12
Elective Courses		
	Choose 6 credits from the following courses:	6
INFO 3130	Introduction to Applied Data Analytics (3.0)	
INFO 4120	Business Intelligence Systems (3.0)	
CS 3720	Database Programming (3.0)	
CS 4100	Database Management System Construction (3.0)	
Sub-Total		6
Total Number of Credits		18

Program Schedule

Summer of First Year	Course Title	Credit Hours
INFO 2410	Database Fundamentals	3
Semester total:		3

Fall of First Year	Course Title	Credit Hours
INFO 3410	Database Systems and Warehousing	3
INFO 4410	Database Administration	3
	Semester total:	6
Spring of First Year	Course Title	Credit Hours
INFO 4415	Database Security and Auditing	3
Elective	Elective	3
Elective	Elective	3
	Semester total:	9

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah Valley University
Proposed Title: Certificate of Proficiency in Health Information Technology
School or Division or Location: College of Technology and Computing
Department(s) or Area(s) Location: Information Systems and Technology
Recommended Classification of Instructional Programs (CIP) Code¹ (for new programs): 51.0706
Proposed Beginning Date (for new programs): Fall 2017
Institutional Board of Trustees' Approval Date: Pending

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
<i>R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar</i>		
SECTION NO.		ITEM
5.1.1	<input type="checkbox"/>	Minor*
5.1.2	<input type="checkbox"/>	Emphasis*
5.2.1	<input checked="" type="checkbox"/>	Certificate of Proficiency*
5.2.3	<input type="checkbox"/>	Graduate Certificate*
5.4.1	<input type="checkbox"/>	New Administrative Unit
	<input type="checkbox"/>	Administrative Unit Transfer
	<input type="checkbox"/>	Administrative Unit Restructure
	<input type="checkbox"/>	Administrative Unit Consolidation
5.4.2	<input type="checkbox"/>	New Center
	<input type="checkbox"/>	New Institute
	<input type="checkbox"/>	New Bureau
5.5.1	<input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2	<input type="checkbox"/>	Program Transfer
	<input type="checkbox"/>	Program Restructure
	<input type="checkbox"/>	Program Consolidation
5.5.3	<input type="checkbox"/>	Name Change of Existing Programs
5.5.4	<input type="checkbox"/>	Program Discontinuation
	<input type="checkbox"/>	Program Suspension
5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: MM/DD/YEAR

Printed Name: Jeffery Olson

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

Program Request - Abbreviated Template
Utah Valley University
Certificate of Proficiency in Healthcare Information Technology
5/20/2016

Section I: Request

The Department of Information Systems and Technology in the College of Technology and Computing at Utah Valley University requests approval to offer a Certificate of Proficiency in Healthcare Information Technology effective Fall 2017.

Section II: Need

The healthcare industry is currently undergoing change related to the implementation of information systems like Electronic Medical Records (EMR) due to mandated laws and regulations. Therefore, educational programs that can provide workers with a combination of clinical knowledge and technical skill are in high demand. Currently, the University of Utah offers an MS and Ph.D. in Biomedical Informatics. Weber State University offers an online distance education BS in Health Administrative Services with an emphasis in Health Information Management, and an AAS in Health Information Technology; these programs are located in the College of Health Professions. Salt Lake Community College offers a CC and an AAS degree in Health Information Technology both with a strong focus on medical coding and health information management. No CP degrees in Healthcare Information Technology programs exist in USHE schools. This certificate of proficiency would be targeted to bridge the technical skills gap faced by clinical specialists who may already have a degree and the medical domain gap faced by working IT, IS, or CS professionals who want to break into in this booming industry.

A Certificate of Proficiency in Healthcare Information Technology would allow non-students who do not have a degree to obtain a credential to advance their career prospects. A certificate would also allow those individuals who earned degrees outside the computing fields to obtain a credential in healthcare information technology in order to increase their value to their current or future employers. This would benefit these individuals so that they do not have to earn a second bachelor's degree just to get a credential in healthcare information technology.

Professionals working in the healthcare information technology field are often referred to as healthcare IT. According to Shawn Riley, the CEO of HealthTechnica.com, there are two paths for people to break into healthcare IT, from the clinical side (a clinician or nurse who wants to move into a health IT role) or from the IT side (an IT professional without prior healthcare background).²

According to the research firm Burning Glass, the demand for health informatics workers is projected to grow at a rate of twice the employment capability, and there is already a shortage of qualified workers in this area. Their research shows that many of the new jobs are hybrids that require skill sets from different disciplines.³

² <http://healthcareers.about.com/od/gettingthejob/a/BreakInToMed.htm>.

³ <http://www.healthcareitnews.com/news/health-informatics-job-market-trouble>.

A Certificate of Proficiency in Healthcare Information Technology could provide a bridge to both target audiences. Healthcare specialists, such as nurses, medical assistants, clinicians, or public health workers could build their skills in databases, data analysis and visualization, and healthcare informatics, which would help provide technical skills to leverage their medical expertise. Professionals in IT, IS, or CS who have project management, computer programming, and networking skills could build their medical domain knowledge through this certificate coursework. Both groups of students would benefit from classroom projects, teamwork, and hands-on experiences that leverage this more professionally diverse student background.

While the U.S. Bureau of Labor Statistics (BLS) does not specifically track jobs in HIT, the closest related job descriptions are health information technicians and medical and health services managers. According to the BLS, employment of health information technicians is projected to increase an estimated 22% between 2012 and 2022, a rate faster than the national average for all professions. Employment of medical and health services managers is expected to grow 23% from 2012 to 2022, “as the large baby-boom population ages and people remain active later in life, the healthcare industry as a whole will see an increase in the demand for medical services.”⁴

The Utah Department of Workforce Services statewide employment outlook for medical and health services administrators projects that this occupation will experience about average employment growth with a moderate volume of annual job openings. Business expansion, as opposed to the need for replacements, will be the source of the majority of job openings in the coming decade. For the medical records and health information technicians, it is projected that this occupation will experience faster than average employment growth with a moderate volume of annual job openings.

AHIMA (American Health Information Management Association) is a health information management professional association over 60,000 members strong. The median annual wages of medical and health services managers were \$92,800 in the US and \$85,300 in Utah in 2014.⁵ Job responsibility drives salary compensation from administrative support at the low end to IS/IT director at the high end.⁶

This program would augment existing programs (AAS in Information Systems and Technology and the BS in Information Systems with four emphases: Business Intelligence Systems, Geographic Information Systems, Healthcare Information Systems, and Information Security Management), providing an alternative pathway for students and non-students. This new certificate of proficiency would use existing courses and provide a fast-track program for individuals to be retrained in a high-demand area and to find entry-level employment in this growing field.

Section III: Institutional Impact

The addition, the Certificate of Proficiency in Healthcare Information Technology will serve dual purposes: bring in new students to UVU who are not currently enrolled and also provide a complementary program for

⁴ <http://www.bls.gov/ooh/healthcare/medical-records-and-health-information-technicians.htm>.

⁵

http://www.careerinfonet.org/occ_rep.asp?next=occ_rep&Level=&optstatus=111111111&jobfam=29&id=1&nodeid=2&soccode=119111&menuMode=&stfips=49&x=34&y=14

⁶ http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_050303.pdf.

students who may already be enrolled in existing UVU programs and wish more expertise in Health Information Technology.

While no new courses will be needed to support this certificate, the increased enrollments due to this certificate will allow some specialized upper-division courses used to support the existing Information Systems major emphasis in Health Information Systems to be offered every semester. In the required courses for this certificate, 60% of the coursework is available through hybrid format, which will be attractive to working students. Currently, the classes in this certificate are not offered online. By adding electives from the health department, this certificate will also be attractive to students seeking a health degree. Electives for internship coursework will assist students in applying valuable work experience in healthcare to this certificate program.

No new administrative structures will be needed. The program will be housed in the Information Systems and Technology Department, which teaches a majority of the courses in the certificate. Health Information Systems is a growth field in healthcare software development firms, healthcare providers and institutions, and healthcare insurance companies. This certificate will have a positive impact in this component of the Utah technology sector.

Section IV: Finances

No new funds are required. All courses are currently being taught, and sufficient capacity exists to absorb students who choose to pursue this certificate.

Section V: Program Curriculum

*****THIS SECTION OF THE TEMPLATE REQUIRED FOR EMPHASES, MINORS, AND CERTIFICATES ONLY*****

Matriculation Requirements:

Prerequisites may be fulfilled through successful completion of courses listed or by successfully passing challenge exams in areas where challenge exams exist. Check with your advisor to ensure you have met the prerequisites for the elective course.

Statistics Prerequisite (if select INFO 3130 as elective)

- STAT 2050 Introduction to Statistical Methods (4.0)
- or MGMT 2340 Business Statistics I (3.0)
- or MATH 1040 Introduction to Statistics (3.0)
- or MATH 2040 Principles of Statistics (4.0)
- or BESC 3010 Statistics for the Behavioral Sciences (4.0)

Other IT or Health Prerequisites (depending on elective)

All Program Courses (with New Courses in Bold)

Course Prefix and Number	Title	Credit Hours
Required Courses		
INFO 1200 or CS 1400	Computer Programming I for IS/IT or Fundamentals of Programming	3
INFO 2410	Database Fundamentals	3
INFO 3700	Healthcare Informatics Fundamentals	3

Course Prefix and Number	Title	Credit Hours
INFO 3750	Healthcare Information Systems Applications	3
INFO 4700	Healthcare Information Systems Management	3
Sub-Total		15
Elective Courses	Choose 3 credits from the following courses:	3
HLTH 3200	Principles of Community Health (3.0)	
HLTH 4250	Health Services Organization & Policy (3.0)	
HLTH 482R	Community Health Internship (3.0)	
INFO 3130	Introduction to Applied Data Analytics (3.0)	
INFO 3410	Database Systems and Warehousing (3.0)	
INFO 481R	Internship (3.0) (Internship must be related to HIT)	
IT 2700	Information Security Fundamentals (3.0)	
Sub-Total		3
Total Number of Credits		18

Program Schedule

Summer of First Year (Course Prefix and Number)	Course Title	Credit Hours
INFO 2410	Database Fundamentals	3
Semester Total		3
Fall of First Year (Course Prefix and Number)	Course Title	Credit Hours
INFO 1200 or CS 1400	Computer Programming I for IS/IT or Fundamentals of Programming	3
INFO 3700	Healthcare Information Systems	3
Semester total:		6
Spring of First Year (Course Prefix and Number)	Course Title	Credit Hours
INFO 3750	Healthcare Information Systems Applications	3
INFO 4700	Healthcare Information Systems Management	3
Elective	Elective	3
Semester total:		9

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah Valley University
Proposed Title: Application Development Emphasis in the BS in Information Systems
School or Division or Location: College of Technology and Computing
Department(s) or Area(s) Location: Information Systems and Technology
Recommended Classification of Instructional Programs (CIP) Code¹ (for new programs): 11.0202
Proposed Beginning Date (for new programs): Fall 2017
Institutional Board of Trustees' Approval Date: Pending
Proposal Type (check all that apply):

Regents' General Consent Calendar Items	
<i>R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar</i>	
SECTION NO.	ITEM
5.1.1 <input type="checkbox"/>	Minor*
5.1.2 <input checked="" type="checkbox"/>	Emphasis*
5.2.1 <input type="checkbox"/>	Certificate of Proficiency*
5.2.3 <input type="checkbox"/>	Graduate Certificate*
5.4.1	<input type="checkbox"/> New Administrative Unit
	<input type="checkbox"/> Administrative Unit Transfer
	<input type="checkbox"/> Administrative Unit Restructure
	<input type="checkbox"/> Administrative Unit Consolidation
5.4.2	<input type="checkbox"/> New Center
	<input type="checkbox"/> New Institute
	<input type="checkbox"/> New Bureau
5.5.1 <input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2	<input type="checkbox"/> Program Transfer
	<input type="checkbox"/> Program Restructure
	<input type="checkbox"/> Program Consolidation
5.5.3 <input type="checkbox"/>	Name Change of Existing Programs
5.5.4	<input type="checkbox"/> Program Discontinuation
	<input type="checkbox"/> Program Suspension
5.5.5	<input type="checkbox"/> Reinstatement of Previously Suspended Program
	<input type="checkbox"/> Reinstatement of Previously Suspended Administrative Unit

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: *MM/DD/YEAR*

Printed Name: Jeffery Olson

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

Program Request - Abbreviated Template
Utah Valley University
Emphasis in Application Development in the BS in Information Systems
5/20/2016

Section I: Request

The Department of Information Systems and Technology in the College of Technology and Computing at Utah Valley University requests approval to offer a new Emphasis in Application Development in the BS in Information Systems degree effective Fall 2017.

Section II: Need

Students are interested in end-user application development (EUAD) as evidenced that an average of 29 per year for the past three years enrolled in an elective PHP Web Application Development course, and an average of 20 students per year for the past three years enrolled in a Mobile Application Development course. Currently, no other post-secondary school in Utah offers an emphasis in Application Development. There are also many employment prospects for those knowledgeable in end-user application development, with more than 2800 application development job listings in Utah in March 2015.²

End-user application development is an important trend in software technology. Increasingly many computer applications are being written not by professional computer scientists but by people with expertise in other domains supported by computation. End-User Development (EUD) can be defined as a set of methods, techniques, and tools that allow users of software systems, who are acting as non-professional software developers, at some point to create, modify, or extend a software artifact.³ Often professional programmers lack domain knowledge or regular development cycles are too slow to meet fast changing user requirements. End-user development is built on the concepts of collaboration and participatory software design. Most web applications are created through end-user application development. Many frameworks support end-user development of mobile applications.

Statistics from the US Bureau of Labor and Statistics predicted that by 2012 in the United States, there would be fewer than three million professional programmers but more than 55 million people using spreadsheets and databases at work and many writing formulas and queries to support their jobs. More recently, a July 2011 Gartner report indicated that nonprofessional developers will build at least 25% of new business applications by 2014.⁴

The state of Utah has a policy and procedure on end-user development including approval requirements, IT responsibilities, and client responsibilities.⁵

An emphasis in Application Development in the Information Systems BS would prepare students for jobs that straddle the job profiles of computer systems analysts and computer programmers. The Information Systems and Technology Department is also requesting a Certificate of Proficiency in Application

² <http://www.indeed.com/jobs?q=application+development&I=UT>

³ H. Lieberman, F. Paternò, and V. Wulf, Eds., *End-User Development*, Human Computer Interaction Series, Springer, New York, NY, USA, 2006.

⁴ Paterno, F., 2013, *End User Development: Survey of an Emerging Field for Empowering People*, ISRN Software Engineering, <http://dx.doi.org/10.1155/2013/532659>.

⁵ <http://hspolicy.utah.gov/files/dhs/6-%20Technology/6-6-%20End-User%20System%20Development.pdf>.

Development for individuals who already have a degree and don't want to have to get another bachelor's degree to get the Application Development credential. This proposal is different in that it requests to add an emphasis to the BS in Information Systems degree to give current Information Systems students another option for selecting an emphasis for their degree.

Computer Systems Analysts:

Analyze science, engineering, business, and other data processing problems to implement and improve computer systems. Analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations. May analyze or recommend commercially available software. Median wages of 79,700 in the US and 71,300 in Utah for 2012. Job Outlook is much faster than average growth between 2012 and 2022 of 25% in the US and 28% in Utah.⁶ A bachelor's degree in a computer or information science field is common, although not always a requirement. Some firms hire analysts with business or liberal arts degrees who have skills in information technology or computer programming.⁷

Software Developers, Applications:

Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team. May supervise computer programmers. Median wages of 92,700 in the U.S. and 85,100 in Utah for 2013. Job Outlook is much faster than average growth between 2012 and 2022 of 23% in the US and 41% in Utah.⁸

A bachelor's degree in a computer or information science field is common, although not always a requirement. More than 11 percent of employees working in the App Development field and 18 percent working as programmers have no college credential.⁹

Currently, no end-user application development (EUAD) programs exist at the undergraduate level at any USHE school, nor BYU. There are no EUAD minors at any school in Utah. One school offers two related associate's degree emphasis: LDS Business College offers an Associate of Applied Science (AAS) in Information Technology—Web Development Emphasis and an AAS in Information Technology—Mobile Application Development. There are no certificates in EUAD offered at any other universities in Utah.

This program would augment existing programs (AAS in Information Systems and Technology and the BS in Information Systems with four emphases: Business Intelligence Systems, Geographic Information Systems, Healthcare Information Systems, and Information Security Management), providing an alternative

⁶ CareerOneStop, U.S. Department of Labor, www.careerinfonet.org

⁷ Occupational Outlook Handbook, <http://www.bls.gov/ooh/computer-and-information-technology/computer-systems-analysts.htm>

⁸ CareerOneStop, U.S. Department of Labor, www.careerinfonet.org, http://www.careerinfonet.org/occ_rep.asp?next=occ_rep&Level=&optstatus=111111111&jobfam=15&id=1&nodeid=2&soccode=151132&menuMode=&stfips=49&x=51&y=16

⁹ Occupational Outlook Handbook, <http://www.bls.gov/ooh/computer-and-information-technology/computer-systems-analysts.htm>

pathway for students. This new emphasis would use existing courses and provide a fast-track program for individuals to be retrained in a high-demand area and to find entry-level employment in this growing field.

Section III: Institutional Impact

The addition of the Application Development emphasis will consist of existing courses. No new administrative structures will be needed. The program will be housed in the Information Systems and Technology Department, which teaches a majority of the courses in the emphasis. End-user application development (EUAD) is a growth field in business and industry in the Utah technology sector, especially in Utah County. This growing field impacts UVU because the organizations that need application developers will turn to UVU to find qualified job candidates.

Most of the courses will be offered face-to-face or hybrid delivery. Lower-division INFO courses are offered both Fall and Spring. Many upper-division courses are also offered Fall and Spring. Some specialized upper-division courses may be offered only once a year, depending on demand. Several courses are also offered during Summer. Some GE courses and a few select INFO courses may be offered online delivery as well.

Section IV: Finances

With the exception of INFO 3426, all the required and many of elective courses are currently being taught and have sufficient capacity to meet the anticipated student demand. The cost for teaching the additional sections will be covered through the student tuition revenue generated in the new sections and/or from other appropriated funds. Anticipated cost of the additional courses ranges from \$6,000 (adjunct instruction) to \$25,000 (salaried faculty).

Section V: Program Curriculum

*****THIS SECTION OF THE TEMPLATE REQUIRED FOR EMPHASES, MINORS, AND CERTIFICATES ONLY*****

All Program Courses (with New Courses in Bold)

Course Prefix and Number	Title	Credit Hours
Required Courses		
INFO 3422	PHP Web Application Development	3
INFO 3426	Web Content Management Systems Site Development	3
INFO 4420	Mobile Business Application Development	3
INFO 4425	Web Application Security	3
Sub-Total		12
Elective Courses		
	Choose 9 credits from the following:	9
INFO 3750	Healthcare Information Systems Applications	
INFO 4422	Advanced PHP Web Application Development	
CS 2550	Web Programming I	
CS 3410	Human Factors in Software Development	
CS 3660	Web Programming II	

Course Prefix and Number	Title	Credit Hours
DGM 2760	Web Languages I	
DGM 2780	Web Tools and Frameworks I	
Other approved upper-division Information Systems courses		
Sub-Total		9
Total Number of Credits		21

Program Schedule

Fall of First Year (Course Prefix and Number)	Course Title	Credit Hours
ENGL 1010	Introduction to Writing	3
MATH 1050	College Algebra	4
HLTH 1100 or PES 1097	Personal Health and Wellness Fitness for Life	2
ART	Fine Arts Distribution	3
INFO 1120	Information Systems & Technology Fundamentals	3
Semester Total		15

Spring of First Year (Course Prefix and Number)	Course Title	Credit Hours
ENGL 2010 or ENGL 2020	Intermediate Writing Humanities/Social Sciences or Intermediate Writing Science/Technology	3
BIOL	Biology Distribution	3
INFO 1200	Computer Programming I for IS/IT	3
INFO 2420	Web Application Design	3
IM 2600	Spreadsheet Applications	3
ACC 2010	Financial Accounting	3
Semester Total		18

Fall of Second Year (Course Prefix and Number)	Course Title	Credit Hours
INFO 2200	Computer Programming II for IS/IT	3
INFO 2410	Database Fundamentals	3
IT 2600	Data Communication Fundamentals	3
MKTG 2200	Written Business Communication	3
MGMT 2340 or STAT 2050	Business Statistics or Intro to Statistical Methods	3
Semester Total		15

Spring of Second Year (Course Prefix and Number)	Course Title	Credit Hours
ECON 2020	Macroeconomics (fulfills Social/Behavioral Science Distribution)	3
IT 2700	Information Security Fundamentals	3
INFO 3130	Intro to Applied Data Analytics	3
INFO 3700	Health Informatics Fundamentals	3
ACC 2020	Managerial Accounting	3
MGMT 3000	Organizational Behavior	3
	Semester Total	18

Fall of Third Year (Course Prefix and Number)	Course Title	Credit Hours
HIST	American Institutions Distribution	3
PHIL 2050	Ethics and Values	3
INFO 3420	Web Systems Development	3
INFO	Elective	3
MKTG 3600	Principles of Marketing	3
	Semester Total	15

Spring of Third Year (Course Prefix and Number)	Course Title	Credit Hours
	Physical Science Distribution	3
	Humanities Distribution	3
INFO 3410	Database Systems & Warehousing	3
INFO 3422	PHP Web Application Development	3
INFO 3426	Web Content Management Systems Site Development	3
	Semester Total	15

Fall of Fourth Year (Course Prefix and Number)	Course Title	Credit Hours
	Additional Biology or Physical Science	3

INFO 3430	Systems Analysis and Design	3
INFO 405G	Global Ethical and Professional Perspectives in IS and IT	3
INFO 4420	Mobile Business Application Development	3
	Elective	3
	Semester Total	15

Spring of Fourth Year (Course Prefix and Number)	Course Title	Credit Hours
COMP 301R	Digital Lecture Series	1
INFO 4430	Systems Design and Implementation	3
INFO 4440	Enterprise Computing Environments	3
INFO 4425	Web Application Security	3
	Elective	3
	Semester Total	13
	Total All Semesters	124

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah Valley University
Proposed Title: Master of Education
Currently Approved Title: Master of Education, Curriculum and Instruction
School or Division or Location: School of Education
Department(s) or Area(s) Location: School of Education
Current Classification of Instructional Programs (CIP) Code (for existing programs): 13.0301
Proposed Beginning Date (for new programs): Fall 2017
Institutional Board of Trustees' Approval Date: Pending

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
<i>R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar</i>		
SECTION NO.		ITEM
5.1.1	<input type="checkbox"/>	Minor*
5.1.2	<input checked="" type="checkbox"/>	Emphasis*
5.2.1	<input type="checkbox"/>	Certificate of Proficiency*
5.2.3	<input type="checkbox"/>	Graduate Certificate*
5.4.1	<input type="checkbox"/>	New Administrative Unit
	<input type="checkbox"/>	Administrative Unit Transfer
	<input type="checkbox"/>	Administrative Unit Restructure
	<input type="checkbox"/>	Administrative Unit Consolidation
5.4.2	<input type="checkbox"/>	New Center
	<input type="checkbox"/>	New Institute
	<input type="checkbox"/>	New Bureau
5.5.1	<input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2	<input type="checkbox"/>	Program Transfer
	<input checked="" type="checkbox"/>	Program Restructure
	<input type="checkbox"/>	Program Consolidation
5.5.3	<input checked="" type="checkbox"/>	Name Change of Existing Programs
5.5.4	<input type="checkbox"/>	Program Discontinuation
	<input type="checkbox"/>	Program Suspension
5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

*Requires "Section V: Program Curriculum" of Abbreviated Template

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: 5/20/16

Printed Name: Jeffery Olson, Senior VP of Academic Affairs

Program Request - Abbreviated Template
Utah Valley University
Master of Education
5/20/2016

Section I: Request

The School of Education at Utah Valley University requests a name change for the program as a whole, from "Master of Education, Curriculum and Instruction" to "Master of Education." A change is also requested for what are currently "options" within the M.Ed. to "emphases" in this program. The impact of these changes is minimal. The M.Ed. program is already operating with specialized options in Educational Technology, Elementary STEM, Elementary Mathematics, English as a Second Language, Reading I, and Models of Instruction, an option which will be renamed as Teacher Leadership. Finally, a new area of emphasis in Applied Behavior Analysis (ABA) is also requested for Fall 2017.

Section II: Need

This change is necessary for the students completing the program options in order to receive a notation on their diploma indicating that they completed their degree in a specialized area. This is not currently available to students graduating from the Master of Education program. All UVU Master of Education students currently receive a degree in Curriculum and Instruction only.

Coursework in the new ABA emphasis will qualify students to be a Board Certified Behavior Analyst (BCBA). Because this certification is a new requirement for positions in behavior analytic support, there is a growing demand for BCBA's in Utah and throughout the United States. The state of Utah has the second-highest prevalence of autism in the nation (1 in 54), and Utah County has the highest rate in Utah: 1 in 40. In 2000, 642 or 1.20% of children ages 3-21 who received special education services in Utah have autism. In 2012-2013, 4,858 or 6.2% of children with disabilities ages 3-21 who received special education services have autism. Utah is one of eight states to receive a rating of "Needs Intervention" from the U.S. Department of Education for services in special education as of the 2010/2011 school year. This rating indicates that Utah needs to improve the quality and quantity of professionals and services provided to students with disabilities, namely those on the autism spectrum.

Students who complete a bachelor's degree may be able to engage in behavioral analytic support for individuals with local school districts, but their service range is limited by insurance and Medicaid coverage. The new Utah law securing health insurance coverage for the treatment of autism spectrum disorder requires health benefit plans offered or renewed in the individual market or large group market to provide coverage for the diagnosis and treatment of autism spectrum disorder for children two to nine years of age. Regulated health plans must cover behavioral health treatments, including applied behavior analysis (*UT Code 31A-22-642*). This legislative guideline dictates the further need to develop quality programs to educate individuals to serve in the mandated capacity.

Federal Medicaid laws were recently clarified to support treatment of individuals with autism up to the age of 22. Agencies in Utah are scrambling to meet the demand of an additional 4000 individuals who now qualify for services. Requirements for Medicaid services indicate a BCBA must oversee programming. In part due to these updates, Utah now has state licensure for behavior analysts. The completion of a BCBA is one of the required steps in the licensure process.

Utah currently has 79 BCBA's, with less than 20% of those practicing in Utah Valley (an area where the incident of autism is 1 in 40). This number speaks clearly to the need of proposed education efforts in this direction. The proposed ABA emphasis is designed to meet the needs of Utah Valley's autism community and support the delivery of services as put forth in recent legislation for both Medicaid and insurance coverage. While demand for the BCBA and BCBA-D credentials are increasing overall, the relative growth of the BCBA credential as a requirement for a job, rather than a preference, is increasing more quickly. Demand for behavior analyst positions more than doubled between 2012 (1,414 postings) and 2014 (3,083 postings) and is skewing more heavily toward positions requiring the BCBA credential. This is a national trend, as demand increased in almost every state.

Students in Utah County seeking to obtain a master's degree and their BCBA certification currently have limited options available to them. The University of Utah offers a specialty track for Board Certification in Behavior Analysis in their School Psychology Program that requires students in the master's (or doctoral) program to complete selective courses to fulfill their BCBA requirements in addition to completing the general requirements of the graduate program. Utah State University offers this specialization in their MS in Special Education and Rehabilitation only every other year, and various online degree programs across the nation also offer some of the required elements for BACA certification. The proposed emphasis at UVU will be primarily offered through face-to-face classes.

Section III: Institutional Impact

Because the option courses are already operating within the M.Ed. program, this proposed administrative change should not affect enrollments or existing administrative structures in the School of Education. (UVU currently only offers classes for options in Elementary Mathematics, Gifted and Talented Education, Reading I, and Elementary STEM as needed.) The Graduation Office will need to modify the information included on M.Ed. degrees.

For the proposed ABA emphasis, projected enrollments of students in neighboring school districts, anticipate that the pattern of increasing need to accommodate students with special learning challenges illustrating the high market demand for highly qualified professionals from accredited institutions in this field. Currently many providers and companies are recruiting candidates outside of Utah due to the limited number of qualified individuals within state boundaries. In addition, students in Utah County seeking to obtain a master's degree and their BCBA certification currently have limited options (Utah State University & University of Utah) and many of them look to online university programs. The proposed emphasis at UVU will be primarily offered through face-to-face classes.

Initial coverage for courses in the proposed ABA program can be covered by qualified instructors who are currently employed at UVU. Based on a projected enrollment of 15-20 students per year in a two-year program, it is estimated that the program courses can initially be covered by existing faculty members, but an additional faculty member may be needed after the third year.

For Proposed Graduate Program, ABA Emphasis

Expected number of FTE faculty, if any, reassigned from teaching undergraduate courses to teach graduate courses 2 .

Professors with specialized certification (BCBA) will go on to teach at the graduate level primarily, with adjunct support being used in the short term for the undergraduate courses until a full-time undergraduate lecturer in Autism Studies can be secured.

Section IV: Finances

There are no new costs or savings anticipated from the changes from options to emphases within the Master of Education program.

The new ABA emphasis will require students to pay an additional clinical fee for the supervision requirement. The requirements set forth by the Behavior Analyst Certification Board require that students complete their master’s degree 1000 hours of an *Approved Experience*. To complete all 1000 experience hours, students will need to complete 16-20 hours per week for four semesters. Supervision requirements for the Approved Experience hours require 7.5% of the students’ hours to be supervised both during individual and group supervision. Group supervision can only account for 50% of the supervised hours, the other 50% must come from one on one supervision each week.

To meet the intensive supervision requirements, UVU will provide the group supervision hours for all students and contract out to certified BCBA supervisors within the community for the individual supervision hours. This fee will be attached to the following new ABA courses during the course of this master’s emphasis program. For the courses specific to this new emphasis (EDUC 6010, 6020, 6030, 6040, 6050, 6060), students will be charged an additional clinical fee of \$640 per class to cover the cost of clinical supervision for each term.

Section V: Program Curriculum

All Program Courses (with New Courses in Bold)

Master of Education

Course Prefix and Number	Title	Credit Hours
Discipline Core Requirements		12
EDUC 6100	Research Methodology	3
EDUC 6110	Applied Statistics for Education	3
EDUC 6200	Master’s Project	3
EDUC 6910	Project I	1
EDUC 6920	Project II	1
EDUC 693R	Project III	1
	Core Total	12

All Program Courses (with New Courses in Bold)
Applied Behavioral Analysis Emphasis

Course Prefix and Number	Title	Credit Hours
Emphasis Requirements		18
EDUC 6010	ABA Concepts and Principles	3
EDUC 6020	Ethics and Professional Competencies in Applied Behavioral Analysis	3
EDUC 6030	Developing and Changing Behaviors	3
EDUC 6040	Measurement in Single Subject Design	3
EDUC 6050	Functional Behavior Assessment and Treatment	3
EDUC 6060	Advanced Topics in Applied Behavioral Analysis	3
	Sub-Total	18
	Total Number of Credits	30

Program Schedule
Master of Education; Applied Behavioral Analysis Emphasis

Summer, Year One	Course Title	Credit Hours
EDUC 6100	Research Methodology	3
	Semester total:	3
Fall, Year One	Course Title	Credit Hours
EDUC 6010	ABA Concepts and Principles	3
EDUC 6020	Ethics and Professional Competencies in Applied Behavioral Analysis	3
	Semester total:	6
Spring, Year One	Course Title	Credit Hours
EDUC 6200	Master's Project (BCBA)	3
EDUC 6030	Developing and Changing Behaviors	3
	Semester total:	6
Summer, Year Two	Course Title	Credit Hours
EDUC 6110	Applied Statistics for Education	3
EDUC 6910	Project I	1
	Semester total:	4
Fall, Year Two	Course Title	Credit Hours
EDUC 6040	Measurement in Single Subject Design	3
EDUC 6920	Project II	1
EDUC 6050	Functional Behavior Assessment and Treatment	3
	Semester total:	7
Spring, Year Two	Course Title	Credit Hours
EDUC 6060	Advanced Topics in Applied Behavioral Analysis	3

EDUC 693R	Project III	1
	Semester total:	4

Educational Technology Emphasis

Course Prefix and Number	Title	Credit Hours
Emphasis Requirements		
EDUC 6080	Cognition, Education and Technology	3
EDUC 6081	Instruction, Curriculum & Educational Leadership in the Digital Age	3
EDUC 6082	Designing and Producing Media for Instruction	3
EDUC 6083	Digital Models of Instruction	3
EDUC 6084	Universal Design for Learning	3
EDUC 6085	Digital Course Design Capstone	3
	Sub-Total	18
	Total Number of Credits	30

Program Schedule

Master of Education; Educational Technology Emphasis

Summer, Year One	Course Title	Credit Hours
EDUC 6083	Digital Models of Instruction	3
EDUC 6100	Research Methodology	3
EDUC 6081	Instruction, Curriculum & Educational Leadership in the Digital Age	3
	Semester total:	9
Fall, Year One	Course Title	Credit Hours
EDUC 6200	Master's Project	3
EDUC 6910	Project I	1
	Semester total:	4
Spring, Year One	Course Title	Credit Hours
EDUC 6084	Universal Design for Learning	3
EDUC 6920	Project II	1
	Semester total:	4
Summer, Year Two	Course Title	Credit Hours
EDUC 6082	Designing and Producing Media for Instruction	3
EDUC 6110	Applied Statistics for Education	3
	Semester total:	6
Fall, Year Two	Course Title	Credit Hours
EDUC 6080	Cognition, Education and Technology	3
	Semester total:	3
Spring, Year Two	Course Title	Credit Hours
EDUC 6085	Digital Course Design Capstone	3
EDUC 693R	Project III	1

	Semester total:	4
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Elementary Mathematics Emphasis

Course Prefix and Number	Title	Credit Hours
Required Courses		
EDUC 6500	Teaching K-8 Numbers and Operations	3
EDUC 6510	Teaching K-8 Rational Numbers and Proportional Reasoning	3
EDUC 6520	Teaching K-8 Algebraic Reasoning	3
EDUC 6530	Teaching K-8 Geometry and Measurement	3
EDUC 6540	Teaching K-8 Data Analysis and Problem Solving	3
EDUC 6550	Teaching K-8 Assessment and Intervention	3
	Sub-Total	18
	Total Number of Credits	30

Program Schedule

Master of Education; Elementary Mathematics Emphasis

Summer, Year One	Course Title	Credit Hours
EDUC 6500	Teaching K-8 Numbers and Operations	3
EDUC 6100	Research Methodology	3
EDUC 6510	Teaching K-8 Rational Numbers and Proportional Reasoning	3
	Semester total:	9
Fall, Year One	Course Title	Credit Hours
EDUC 6200	Master's Project	3
EDUC 6910	Project I	1
	Semester total:	4
Spring, Year One	Course Title	Credit Hours
EDUC 6520	Teaching K-8 Algebraic Reasoning	3
EDUC 6920	Project II	1
	Semester total:	4
Summer, Year Two	Course Title	Credit Hours
EDUC 6540	Teaching K-8 Data Analysis and Problem Solving	3
EDUC 6110	Applied Statistics for Education	3
	Semester total:	6
Fall, Year Two	Course Title	Credit Hours
EDUC 6530	Teaching K-8 Geometry and Measurement	3
	Semester total:	3
Spring, Year Two	Course Title	Credit Hours
EDUC 6550	Teaching K-8 Assessment and Intervention	3
EDUC 693R	Project III	1
	Semester total:	4

Elementary STEM

Course Prefix and Number	Title	Credit Hours
Emphasis Requirements		
EDUC 6750	Energy in STEM for Elementary Teachers	3
EDUC 6760	Force in STEM for Elementary Teachers	3
EDUC 6770	Matter in STEM for Elementary Teachers	3
EDUC 6780	Science and Engineering in Elementary STEM Education	3
EDUC 6790	Technology and Problem-Based Learning in Elementary STEM Education	3
EDUC 6540	Teaching K-8 Data Analysis and Problem Solving	3
	Sub-Total	18
	Total Number of Credits	30

Program Schedule

Mater of Education; Elementary STEM Emphasis

Summer, Year One	Course Title	Credit Hours
EDUC 6540	Teaching K-8 Data Analysis and Problem Solving	3
EDUC 6100	Research Methodology	3
EDUC 6780	Science and Engineering in Elementary STEM Education	3
	Semester total:	9
Fall, Year One	Course Title	Credit Hours
EDUC 6200	Master's Project	3
EDUC 6910	Project I	1
	Semester total:	4
Spring, Year One	Course Title	Credit Hours
EDUC 6770	Matter in STEM for Elementary Teachers	3
EDUC 6920	Project II	1
	Semester total:	4
Summer, Year Two	Course Title	Credit Hours
EDUC 6750	Energy in STEM for Elementary Teachers	3
EDUC 6110	Applied Statistics for Education	3
	Semester total:	6
Fall, Year Two	Course Title	Credit Hours
EDUC 6540	Teaching K-8 Data Analysis and Problem Solving	3
	Semester total:	3
Spring, Year Two	Course Title	Credit Hours
EDUC 6790	Technology and Problem-Based Learning in Elementary STEM Education	3
EDUC 693R	Project III	1
	Semester total:	4

English as a Second Language

Course Prefix and Number	Title	Credit Hours
Required Courses		
EDUC 6340	English as a Second Language Methods	3
EDUC 6350	Theories of Second Language Acquisition	3
EDUC 6360	Multicultural Education	3
EDUC 6370	Assessment of Second Language Learners	3
EDUC 6380	Literacy and Linguistics in English as a Second Language	3
EDUC 6390	Family and Community Involvement	3
	Sub-Total	18
	Total Number of Credits	30

Program Schedule

Mater of Education; English as a Second Language Emphasis

Summer, Year One	Course Title	Credit Hours
EDUC 6340	English as a Second Language Methods	3
EDUC 6100	Research Methodology	3
EDUC 6350	Theories of Second Language Acquisition	3
	Semester total:	9
Fall, Year One	Course Title	Credit Hours
EDUC 6200	Master's Project	3
EDUC 6910	Project I	1
	Semester total:	4
Spring, Year One	Course Title	Credit Hours
EDUC 6360	Multicultural Education	3
EDUC 6920	Project II	1
	Semester total:	4
Summer, Year Two	Course Title	Credit Hours
EDUC 6370	Assessment of Second Language Learners	3
EDUC 6110	Applied Statistics for Education	3
	Semester total:	6
Fall, Year Two	Course Title	Credit Hours
EDUC 6380	Literacy and Linguistics in English as a Second Language	3
	Semester total:	3
Spring, Year Two	Course Title	Credit Hours
EDUC 6390	Family and Community Involvement	3
EDUC 693R	Project III	1
	Semester total:	4

Reading I Emphasis

Course Prefix and Number	Title	Credit Hours
Required Courses		
EDUC 6660	Reading Assessments and Instructional Interventions	3
EDUC 6661	Literacy and Cognition of Reading	3
EDUC 6662	Early Literacy Instruction	3
EDUC 6663	Content Area Reading	3
EDUC 6664	Adolescent Literacy	3
EDUC 6665	Reading Comprehension Instruction	3
EDUC 6666	Effective Writing Instruction	3
	Sub-Total	21
	Total Number of Credits	33

Program Schedule

Master of Education; Reading I Emphasis

Summer, Year One	Course Title	Credit Hours
EDUC 6660	Reading Assessments and Instructional Interventions	3
EDUC 6100	Research Methodology	3
EDUC 6661	Literacy and Cognition of Reading	3
	Semester total:	9
Fall, Year One	Course Title	Credit Hours
EDUC 6200	Master's Project	3
EDUC 6910	Project I	1
	Semester total:	4
Spring, Year One	Course Title	Credit Hours
EDUC 6662	Early Literacy Instruction	3
EDUC 6920	Project II	1
	Semester total:	4
Summer, Year Two	Course Title	Credit Hours
EDUC 6110	Applied Statistics for Education	3
EDUC 6663	Content Area Reading	3
EDUC 6664	Adolescent Literacy	3
	Semester total:	9
Fall, Year Two	Course Title	Credit Hours
EDUC 6665	Reading Comprehension Instruction	3
	Semester total:	3
Spring, Year Two	Course Title	Credit Hours
EDUC 6666	Effective Writing Instruction	3
EDUC 693R	Project III	1
	Semester total:	4

Teacher Leadership Emphasis

Course Prefix and Number	Title	Credit Hours
Required Courses		
EDUC 6320	21 st Century Teaching and Learning	3
EDUC 6300	Curriculum Design	3
EDUC 6330	Diversity and Differentiation in the Classroom	3
EDUC 6410	Contemporary Issues	3
EDUC 6310	Assessing Educational Practices	3
EDUC 6400	Teachers as Leaders	3
Sub-Total		18
Total Number of Credits		30

Program Schedule

Master of Education; Teacher Leadership Emphasis

Summer, Year One	Course Title	Credit Hours
EDUC 6320	21 st Century Teaching and Learning	3
EDUC 6100	Research Methodology	3
EDUC 6300	Curriculum Design	3
Semester total:		9
Fall, Year One	Course Title	Credit Hours
EDUC 6200	Master's Project	3
EDUC 6910	Project I	1
Semester total:		4
Spring, Year One	Course Title	Credit Hours
EDUC 6330	Diversity and Differentiation in the Classroom	3
EDUC 6920	Project II	1
Semester total:		4
Summer, Year Two	Course Title	Credit Hours
EDUC 6110	Applied Statistics for Education	3
EDUC 6410	Contemporary Issues in Education	3
Semester total:		6
Fall, Year Two	Course Title	Credit Hours
EDUC 6310	Assessing Educational Practices	3
Semester total:		3
Spring, Year Two	Course Title	Credit Hours
EDUC 6400	Teachers as Leaders	3
EDUC 693R	Project III	1
Semester total:		4

**Utah System of Higher Education
New Academic Program Proposal
Cover/Signature Page - Abbreviated Template**

Institution Submitting Request: Utah Valley University
Proposed Program Title: Certificate of Proficiency in
 Advanced Manufacturing
Sponsoring School, College, or Division: College of Computing and Technology
Sponsoring Academic Department(s) or Unit(s): Technology Management
Classification of Instructional Program Code¹ : 15.0613
Min/Max Credit Hours Required of Full Program: 18 / 18
Proposed Beginning Term²: Fall 2017
Institutional Board of Trustees' Approval Date:

Program Type:

<input type="checkbox"/>	Certificate of Proficiency	<input checked="" type="checkbox"/>	Entry-level CTE CP	<input type="checkbox"/>	Mid-level CP
<input type="checkbox"/>	Certificate of Completion				
<input type="checkbox"/>	Minor				
<input type="checkbox"/>	Graduate Certificate				
<input type="checkbox"/>	K-12 Endorsement Program				
<input type="checkbox"/>	NEW Emphasis for Regent-Approved Program				
	<i>Credit Hours for NEW Emphasis Only:</i>	Min Cr Hr	/	Max Cr Hr	
	<i>Current Major CIP:</i>	CIP Code: 48.0501			
	<i>Current Program Title:</i>				
	<i>Current Program BOR Approval Date:</i>				
<input type="checkbox"/>	Out of Service Area Delivery Program				

Chief Academic Officer (or Designee) Signature:

I, the Chief Academic Officer or Designee, certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Jeff Olson _____

Date:

¹ For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

² "Proposed Beginning Term" refers to first term after Regent approval that students may declare this program.

**Utah System of Higher Education
Program Description - Abbreviated Template
Certificate of Proficiency in Advanced Manufacturing
Utah Valley University**

Section I: The Request

The Department of Technology Management in the College of Technology and Computing at Utah Valley University requests approval to offer an Entry-Level CTE Certificate of Proficiency in Advanced Manufacturing effective Fall 2017.

Section II: Program Proposal/Needs Assessment

Program Description/Rationale

The Certificate of Proficiency in Advanced Manufacturing is designed to provide entry-level manufacturing technician skills that are needed in expanding the manufacturing industry in Utah Valley. Although the term "advanced" might be confusing for a program providing entry-level skills, nationally this is the term that is being used. The program focuses on the basic skills used in advanced manufacturing processes expanding across the nation. The components of the certificate will include basic manufacturing skills with hands-on activities on equipment used in local facilities. Graduates of this certificate will have a basic understanding of advanced manufacturing operations with an emphasis on solving problems in the organization. While this program offers an entry-level certification for individuals pursuing a career in manufacturing, it has been designed to enable individuals the opportunity to continually expand and upgrade their applied skills as well as to maintain a thorough mastery of evolving manufacturing technologies.

UVU is responding to requests from local manufacturing companies and is being guided by an industry advisory committee that has suggested and validated the instructional components of the proposed certificate. Representatives from local business and industry manufacturing firms have helped identify the competencies that will be delivered in the certificate. The advisory committee will continue to provide guidance as the program is implemented. Based on this input from business and industry, and working in cooperation with the Department of Workforce Services, UVU is in a unique position to address the workforce needs of Utah's manufacturing firms targeting advanced manufacturing competencies needed in the Southern Wasatch front, including Utah, Wasatch, and Summit counties.

UVU and the state will benefit from the students who complete the certificate by both reducing the skill shortage in these areas, and by providing a manufacturing pathway for high school students, college students, and adults who have been unemployed or underemployed.

According to the Utah Department of Workforce Services, manufacturing employment has been increasing steadily since the great recession. Between 2012 and 2015, the number of job opportunities increased by 20% and will continue to expand. The number of job openings will continue to lead the number of trained individuals prepared to enter this industry. In the Provo/Orem area, DWS projects that the increase in the number of jobs each year is around three percent.¹

The number of students enrolled in the technology management certificates and degrees at UVU have been expanding, resulting in an additional faculty being added for the 2015-16 academic year. Many of these students will be interested in the certificate since it will be an integral component of the existing AAS degree and leads to the existing bachelor's degree. The DWS will make the opportunity available to their clients, and a number of companies are asking for the certificate to be offered to their employees.

¹ <https://jobs.utah.gov/wi/pubs/trendlines/winter12/winter12.pdf>

Labor Market Demand

According to Carnevale, manufacturing is the largest industry in the United States, and will remain that way through 2020. Advanced manufacturing will account for much of the production growth. In 2013, 13% of U.S. workers were employed in manufacturing, and by 2025 3.5 million manufacturing jobs will need to be filled.²

A Certificate of Proficiency in Advanced Manufacturing will prepare individuals for entry-level positions in manufacturing and begin a pathway that leads to additional certificates and degrees. According to the current DWS Job Outlook information, there are 2,380 total jobs created a year in the manufacturing titles that require an entry-level skill. There were 2,428 jobs open in these categories as of November 2, 2015. The current average hourly median wage for these positions is \$24.35 per hour, with an annual median wage of \$50,654.

According to the industry projections for the U.S., as reported in Industry Week, the future for manufacturing in the U.S. has been on an upward climb since 2010. Manufacturers had a good year in 2015 and expect that the trend will continue. The National Association of Manufacturers survey is optimistic for the future. 91.2% of the respondents were either somewhat or very positive in their own company's outlook. There has been an upward trend that began in the first quarter of 2013. The survey taken last year indicates that firms plan to increase their employee levels by 2.1% on average over the next 12 months, up from 0.9 percent last survey.³

According to Deloitte, an affiliate of the National Manufacturing Institute, the skills gap in U.S. manufacturing will continue through 2025. "Over the next decade, nearly three and a half million manufacturing jobs likely need to be filled and the skills gap is expected to result in two million of those jobs going unfilled."⁴ There are two major contributing factors to the widening gap—baby boomer retirements and economic expansion. An estimated 2.7 million jobs are likely to be needed as a result of retirements of the existing workforce, while 700,000 jobs are likely to be created due to natural business growth.⁵

In addition to retirements and economic expansion, other factors contribute to the shortage of skilled workforce, including loss of embedded knowledge due to movement of experienced workers, a negative image of the manufacturing industry among younger generations, lack of STEM (science, technology, engineering and mathematics) skills among workers, and a gradual decline of technical education programs in public high schools.⁶

² Carnevale, A. P., Smith, N., & Strohl, J. (2013). *Recovery: Job Growth and Education Requirements Through 2020*. Washington, DC: Georgetown University Center on Education and the Workforce; Carnevale, A. P., Smith, N., & Strohl, J. (2010). *Help Wanted: Projections of Jobs and Education Requirements Through 2018*. Washington, DC: Georgetown University Center on Education and the Workforce.

³ <http://www.industryweek.com/global-economy/namiw-2015-1q-survey-outlook-positive-us-manufacturing>

⁴ Deloitte Analysis based on data from U.S. Bureau of Labor Statistics and Gallup Survey

⁵ Ibid

⁶ Gerald Shankel, *America's most wanted: Skilled workers*, Fabricators & Manufacturers Association, International, 2010, <http://www.nutsandboltsfoundation.org/wp-content/uploads/skilled-labor-shortage2010.pdf>; 2015 Manufacturing Perception Study, Manufacturing Institute and Deloitte, 2014; *Where are the STEM students*, STEM Connector, 2013, <https://www.stemconnector.org/sites/default/files/store/STEM-Students-STEMJobs-Executive-Summary.pdf>; Lauren Weber, *Apprenticeships Help Close the Skills Gap. So Why Are They in Decline?*, Wall Street Journal, April 27, 2014, <http://online.wsj.com/news/articles/SB10001424052702303978304579473501943642612>

Consistency with Institutional Mission/Impact on Other USHE Institutions

The Proposed Certificate in Advanced Manufacturing fits within the UVU mission to serve the educational and economic development needs of the Mountainland Region in harmony with institutional and Regents R312 policy. The certificate will specifically serve the needs of the manufacturing industry in the local service industry and beyond for skilled entry level employees, and give them an opportunity to pursue a complete educational pathway. The certificate will be delivered on campus and is planned to be taught at specific industry sites within the service region. UVU received NWCCU approval to teach at two local manufacturing sites (US Synthetics and a pilot at IM Flash) and is working on developing contracts.

The mission of UVU is to provide access to higher education and offer a broad range of opportunities from developmental education through honors programs. The institution provides services designed to meet the educational and personal needs of students, and to promote economic and cultural development to contribute to the quality of life of the region and state. The institution fosters economic development and provides a talent-force to meet the needs of a dynamic economy by offering credit and non-credit programs and services for individuals and organizations.

Finances

Two new courses are being added to support this certificate. Sufficient salaried faculty exist to teach these discipline-specific courses by shifting salaried faculty from the general education TECH 1010 course and utilizing qualified adjuncts to teach that course. Minimal new funds (approximately \$6,500) will be needed to implement the new courses for the certificate. The salaried faculty and other resources are already in place to support the AAS, and the B.S. in Technology Management, and the proposed certificate stacks within the associate degree. Further, a grant from the Utah Cluster Acceleration Project will help support any initial startup costs for supplies and materials.

Section III: Curriculum

Program Curriculum

Course Number NEW	Course Title	Credit Hours
Course		
General Education Courses (list specific courses if recommended for this program on Degree Map)		
General Education Credit Hour Sub-Total		
Required Courses		
TECH 1050	Manufacturing Processes and Systems	3
TECH 2050	Introduction to Quality Management	3
INFO 2100	Computer Proficiency for Technology Professionals	3
TECH 2010	Supervision in Technology	3
Add Another Required Course		
Required Course Credit Hour Sub-Total		12
Elective Courses		
TECH 281r or TECH 1000	Internship (1.0) or Experiential Credit Portfolio (2.0)	1
Math 1040 or EGDT 1600	Statistics (3.0) or Technical Math – Algebra (3.0)	3
EGDT 1000 or EGDT 1071	Introduction to Engineering Drawing and Technical Design (2.0) or 3D Modeling—Solidworks (3.0)	2

Add Another Elective Course

Elective Credit Hour Sub-Total 6

Total Credits 18

Are students required to choose an emphasis for the already-existing degree? Yes or No

Course Number	NEW Course	Course Title	Credit Hours
Name of Emphasis:			
Add Another Emphasis Course			
Emphasis Credit Hour Sub-Total			
Total Number of Credits to Complete Program			21

Propose a NEW Emphasis to an existing Regent approved program

Program Curriculum Narrative

The following two new courses will be added to the Technology Management Department: TECH 1050 Manufacturing Processes and Systems and TECH 2050 Introduction to Quality Management. All other courses necessary for the proposed certificate are currently available. TECH 1050 is being designed to fit into a Manufacturing Pathway that will give students in high schools in the Mountainland Region and students at the Mountainland Applied Technology College an opportunity to articulate directly into the proposed certificate, which is a stackable component of the existing AAS Degree and the BS degree.

The proposed certificate will be offered on campus during the regular blocks and semesters as well as at off campus sites and company sites as requested by business and industry and approved by UVU and NWCCU. Online classes may be offered as well.

Degree Map

Toggle Cut-and-Paste

Toggle Table

First Year Fall		Cr. Hr.	First Year Spring		Cr. Hr.
TECH 1050		3	INFO 2100		3
TECH 2050		3	EGDT 1000 or EGDT 1071		2
Math 1040 or EGDT 1600		3	TECH 281r or TECH 1000		1
TECH 2010		3			
Add Courses	Total	12	Total	Total	6
Second Year Fall		Cr. Hr.	Second Year Spring		Cr. Hr.
Add Courses	Total		Total	Total	

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah Valley University
Proposed Title: Certificate of Proficiency in National Security Studies
School or Division or Location: College of Aviation and Public Services
Department(s) or Area(s) Location: Department of Criminal Justice
Recommended Classification of Instructional Programs (CIP) Code¹ (for new programs): 45.0902
Proposed Beginning Date (for new programs): Fall 2017
Institutional Board of Trustees' Approval Date: Pending

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar		
SECTION NO.		ITEM
4.1.5.1	<input type="checkbox"/>	K-12 Endorsements
5.1.1	<input type="checkbox"/>	Minor*
5.1.2	<input type="checkbox"/>	Emphasis*
5.2.1	<input checked="" type="checkbox"/>	Certificate of Proficiency*
5.2.3	<input type="checkbox"/>	Graduate Certificate*
5.4.1	<input type="checkbox"/>	New Administrative Unit
	<input type="checkbox"/>	Administrative Unit Transfer
	<input type="checkbox"/>	Administrative Unit Restructure
	<input type="checkbox"/>	Administrative Unit Consolidation
5.4.2	<input type="checkbox"/>	Conditional Three-Year Approval for New Centers, Institutes, or Bureaus
5.4.3	<input type="checkbox"/>	New Center
	<input type="checkbox"/>	New Institute
	<input type="checkbox"/>	New Bureau
5.5.1	<input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2	<input type="checkbox"/>	Program Transfer
	<input type="checkbox"/>	Program Restructure
	<input type="checkbox"/>	Program Consolidation
5.5.3	<input type="checkbox"/>	Name Change of Existing Programs
5.5.4	<input type="checkbox"/>	Program Discontinuation
	<input type="checkbox"/>	Program Suspension
5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

*Requires "Section V: Program Curriculum" of Abbreviated Template

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: 5/20/16

Printed Name: Jeffery Olson, Senior VP of Academic Affairs

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

Program Request - Abbreviated Template
UTAH VALLEY UNIVERSITY
Certificate of Proficiency in National Security Studies
05/26/2016

Section I: Request

The Department of Criminal Justice in the College of Aviation and Public Services at Utah Valley University requests permission to offer a Certificate of Proficiency in National Security Studies effective Fall 2017.

Section II: Need

National security is a vital and emerging academic discipline and career path. Institutions across the country have added successful courses and programs in national security, in part to support an emergent national security sector. Utah has experienced tremendous growth in both the public and private national security sector, with companies such as Boeing, ATK, and Northrup Grumman and with major industry supply chain players like Exelis, Janicki, and Rockwell Collins along with installations such as the National Security Agency (NSA) Utah Data Center and Hill Air Force Base.² As a result, Utah's political leadership has emphasized the need for Utah to meet the demands of this dynamic and growing field.³ Governor Herbert commented in 2014 that there is currently a gap between what the marketplace needs and what is being produced and underscored the importance that education plays in bridging that gap.⁴ Yet, while institutions across the country have added successful centers and programs in national security to support an emergent national security sector, Utah has not offered a national security program or hosted a national security-focused center at any of its institutions of higher education to meet this vital need.

UVU's Certificate of Proficiency in National Security Studies (NSS), in collaboration with UVU's Cybersecurity and Homeland Security programs, will enable UVU to meet the employment requirements of this growing field. Whether students are interested in counterterrorism, homeland security, intelligence gathering and analysis, cybersecurity, foreign relations, law and politics, diplomacy, international development, or criminal justice, the NSS Certificate of Proficiency will provide the education and skills needed to succeed in these professions.

Careers related to national security are among the fastest growing professions in the country, with opportunities in both the public and private sectors in Utah and across the country. The NSS Certificate of Proficiency will equip students for a wide range of in-demand and high-paying employment opportunities, including analysts, policy-makers, diplomats, public servants, journalists, computer technicians, cyber specialists, military officers, scientists, advocates, intelligence analysts and agents, engineers, defense contractors, law enforcement officers, technicians, linguists, consultants, emergency management directors, information security analysts, geographers, historians, political scientists, social scientists, educators, public relations specialists, writers, and editors.

² See e.g., Governor will honor state's aerospace industry at Layton luncheon, STANDARD EXAMINER, Sep. 9, 2014, available at <http://www.standard.net/Business/2014/09/09/Top-of-UTah-firms-recognized-as-part-of-Aerospace-Week.html>; Utah celebrates National Aerospace Week, STANDARD EXAMINER, Sept. 16, 2014, available at <http://www.standard.net/Business/2014/09/16/Utah-celebrates-National-Aviation-Week.html>.

³ Id.

⁴ Id.

At the 2014 Utah aerospace and national defense industry conference it was reported that Utah's aerospace and defense economic cluster represents about 4.5% of all state wages, with an average wage in the industry at roughly 90 percent higher than Utah's average annual wage.⁵ Using the Classification of Instructional Programs (CIP) Code (45.0902) and the Standard Occupational Classification (SOC) Codes, the national security subject area represents at least twenty unique occupational areas, and 2,319 jobs available from twenty-five different employers in Utah over the time period of May 1, 2014 to April 30, 2015. The average median salary over the twenty SOC occupations in Utah is \$63,855.50, compared with a general median household income in Utah of \$53,046. All but one of those twenty occupations are projected to experience significant increase in demand in Utah, and thirteen of the twenty were stable or experienced growth in 2013-2014. A number of additional openings were not included in the SOC data at the National Security Agency and a variety of national security sector companies, including L-3 Communications and Northrop Grumman.

Nationwide, the national security sector is also very strong and growing. Thousands of public and private sector national security jobs are available in Washington, D.C. and the surrounding area, and in areas with a strong military or national security presence (e.g., Florida, Texas, Colorado, Nebraska, California, Hawaii, Virginia). Additional job opportunities in national security are available in other areas across the United States and in various locations abroad.

Utah's unique set of strengths has made the state a common destination and recruitment source for national security employers. Utah has the highest per capita foreign language literacy in the nation, a significantly high number of students and graduates with international experience, a commitment to technological enterprise and innovation, a population with proven devotion to civic service and concern about national security issues, and a reputation for integrity and work ethic.⁶ In addition, Utah has developed a corridor of cyber business along the Wasatch Front, commonly referred to as the "Silicon Slopes," just twenty minutes north of UVU's main campus.

Combined, these advantages make Utah an ideal place to prepare students for successful careers in the burgeoning national security sector. Gary Harter, Executive Director of Veteran's Affairs with the Utah Governor's Office of Economic Development, comments that Utah is well known for its "rich history in defense, information technology, and in a lot of other business sectors, as well," and that "a number of companies tell us they like coming to Utah, and they like hiring in Utah, because they find good success with employees in Utah who can readily get security clearances. Those strong demographics include a large population of young people and a well-educated workforce."⁷

The certificate of proficiency will be the first of its kind in Utah, and one of the only programs in the Intermountain region. Similar programs across the country have been extremely successful and have provided academic and career opportunities for students while bringing positive attention and prestige to the state and campus. The NSS certificate of proficiency will position UVU to become a regional hub for national security issues—particularly in coordination with UVU's existing, and complementary, cybersecurity and emergency services programs. UVU is already well known for its focus on public services

⁵ Id.

⁶ See e.g., Suzanne Struglinski, "Utahns' Language Skills Draw NSA," DESERET NEWS, Feb. 3, 2006, available at <http://www.deseretnews.com/article/635181316/Utahns-language-skills-draw-NSA.html?pg=all>.

⁷ See Lindy Kizer, Top 5 Cities for Cyber Security Jobs, CLEARANCEJOBS.COM, May 23, 2013 available at <http://news.clearancejobs.com/2013/05/23/top-5-cities-for-cyber-security-jobs/>.

and practical education and this program will complement the successful programs and institutes already on campus.

The NSS certificate of proficiency is aimed at students with a baccalaureate degree who are looking to re-tool or specialize in national security in order to enter or advance in a national security career. The certificate will provide an interdisciplinary program that prepares students for and allows existing professionals to advance in public and private sector national security careers through acquisition of subject matter expertise and analytical skills. This certificate will expose students to the wide variety of critically important security challenges and issues faced in the twenty-first century, such as terrorism and cyber security, nuclear proliferation and weapons of mass destruction, piracy and global pandemics, sovereignty and the use of force, and civil liberties and the rule of law. Students will also acquire skills such as critical thinking, writing, briefing, and analysis techniques specifically tailored for the national security field, but applicable in many others. Whether students are interested in counterterrorism, homeland security, intelligence gathering and analysis, foreign relations, law and politics, diplomacy, or international development, the NSS certificate of proficiency will provide insight and skills needed to succeed in these professions.

The NSS certificate of proficiency would be a perfect fit for UVU's mission, core values, and institutional role as a regional state university. The NSS certificate of proficiency will focus on teaching excellence in the classroom and providing students with practical engaged learning and career opportunities. Because the certificate will be the only one of its kind in the state, and because Utah has a vibrant and growing national security sector, UVU will provide critical regional educational needs. The NSS certificate of proficiency will prepare professionally competent people of integrity to serve and contribute to a vitally important field in Utah and across the country.

There is significant student interest and demand for an academic program in National Security Studies. More than 70 students have contacted the NSS director via email, office visit, or phone call to express interest in national security courses, activities, and careers. The director of the UVU Veterans Center estimates that many of UVU's 700+ veterans will be interested in national security courses and earning a minor or certificate in National Security Studies, if approved. Similarly, UVU's ROTC leadership estimates that many of their cadets will be interested in a national security studies program and classes. In mid-January 2016 a UVU student started a National Security Studies Society and chartered it as a UVU club. The club already has more than 80 members. In February 2016, the CIA held a career information session, at which more than 150 students attended. In March, the NSS director gave a speech on campus that drew around 70 students. The department and NSS director continue to receive frequent questions about NSS courses and a potential NSS degree or certificate program.

Further support of interest in an NSS academic program is based on the number of students who have enrolled in classes that would constitute likely electives for an NSS certificate. From 2010 to 2014, 3900 students were enrolled in 17 courses from criminal justice, political science, emergency services, constitutional studies, history, legal studies, and peace and justice studies. If POLS 1100 is included, a course from which the NSS academic program will certainly recruit for its program, that number jumps to 15,461 students. Additionally, several courses relevant to national security studies from military science, political science, and criminal justice have been added since 2014 and would increase these already large numbers.

UVU's NSS certificate of proficiency will provide students with the skills and experience required to fill or advance in high-demand and high-paying national security positions in government, the defense industry, the private sector, research institutions, and non-governmental and international organizations. Students will also be assisted in preparing for academic careers and advanced degree programs, such as law, international relations, public administration, and political science.

Section III: Institutional Impact

The Certificate of Proficiency in National Security Studies will be administered out of the Criminal Justice Department, within the College of Aviation and Public Services. Faculty members are already in place for this program and no new physical facilities or modifications to existing facilities are anticipated at this time. In addition, adding a Certificate of Proficiency in National Security Studies will not require any expenses for new equipment. It is anticipated that some or all of the courses required for the Certificate of Proficiency in National Security Studies will be made available on-line within three years.

Section IV: Finances

No additional expenses are anticipated by adding a Certificate of Proficiency in National Security Studies. The faculty member responsible for teaching the new NSS courses is already in place and departments across campus already teach the proposed electives.

Section V: Program Curriculum

*****THIS SECTION OF THE TEMPLATE REQUIRED FOR EMPHASES, MINORS, AND CERTIFICATES ONLY*****

All Program Courses (with New Courses in Bold)

Course Prefix and Number	Title	Credit Hours
Matriculation Requirement: Students must have Advanced University Standing or have completed a baccalaureate degree.		
Complete one of the following:		
CJ 1010	Introduction to Criminal Justice (3.0)	
POLS 1100	American National Government (3.0)	
Sub-Total		3
Discipline Core Requirements		
CJ 2010	Introduction to National Security (3.0)	
CJ 301R	National Security Area Studies (3.0)	
CJ 4600	National Security Law (3.0)	
CJ 475R	Current Topics in Criminal Justice (3.0)	
Sub-Total		12
Elective Requirements: Complete 9 Credits from the following:		
CJ 4210	Law of War (3.0)	
CNST 4795	Civil Rights and Civil Liberties (3.0)	

Course Prefix and Number	Title	Credit Hours
CJ 4160	Constitutional Criminal Rights (3.0)	
CJ 3340	Terrorism—Radical Fundamentalism and Terrorism Financing (3.0)	
ESMG 310G	Introduction to Homeland Security (3.0)	
HIST 3440	The History of World War I (3.0)	
HIST 345G	The History of World War II (3.0)	
HIST 3460	US Military History (3.0)	
HIST 4140	Genocide in the Twentieth Century (3.0)	
HIST 430G	Violence and Social Conflict in Latin America (3.0)	
IT 2700	Information Security Fundamentals (3.0)	
MILS 259R	Current Topics in Military Science (3.0)	
MILS 4200	The Profession of Arms I (3.0)	
MILS 4210	The Profession of Arms II (3.0)	
PJST 3020	The Ethics of War and Peace (3.0)	
PJST 3100	Introduction to Human Security (3.0)	
PJST 3400	Conflict Transformation: Resolution and Sustainable Peace (3.0)	
POLS 1440	Introduction to Middle East Politics (3.0)	
POLS 2100	Introduction to International Relations (3.0)	
POLS 3100	Survey of International Terrorism (3.0)	
POLS 3210	World Diplomacy (3.0)	
POLS 3400	American Foreign Policy (3.0)	
POLS 3500	International Relations of the Middle East (3.0)	
POLS 3600	International Relations of East Asia (3.0)	
POLS 3610	International Organization (3.0)	
POLS 4500	International Conflict and Security (3.0)	
POLS 4610	International Law and Relations (3.0)	
	Other course approved by department, advisor, or director	
Sub-Total		9
Total Number of Credits		24

Program Schedule

Fall of First Year	Course Title	Credit Hours
<i>CJ 1010 or POLS 1100</i>	Introduction to Criminal Justice or American Nat'l Govt. (Matriculation requirement)	3
<i>CJ 2010</i>	Introduction to National Security	3
<i>CJ 301R</i>	National Security Area Studies	3
	Elective	3

	Semester total:	12
Fall of Second Year	Course Title	Credit Hours
<i>CJ 475R</i>	Current Topics in Criminal Justice	3
<i>CJ 4600</i>	National Security Law	3
	Elective	3
	Elective	3
	Semester total:	12

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah Valley University
Proposed Title: Minor in National Security Studies
School or Division or Location: College of Aviation and Public Services
Department(s) or Area(s) Location: Department of Criminal Justice
Recommended Classification of Instructional Programs (CIP) Code¹ (for new programs): 45.0902
Proposed Beginning Date (for new programs): Fall 2017
Institutional Board of Trustees' Approval Date: Pending

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar		
SECTION NO.		ITEM
4.1.5.1	<input type="checkbox"/>	K-12 Endorsements
5.1.1	<input checked="" type="checkbox"/>	Minor*
5.1.2	<input type="checkbox"/>	Emphasis*
5.2.1	<input type="checkbox"/>	Certificate of Proficiency*
5.2.3	<input type="checkbox"/>	Graduate Certificate*
5.4.1	<input type="checkbox"/>	New Administrative Unit
	<input type="checkbox"/>	Administrative Unit Transfer
	<input type="checkbox"/>	Administrative Unit Restructure
	<input type="checkbox"/>	Administrative Unit Consolidation
5.4.2	<input type="checkbox"/>	Conditional Three-Year Approval for New Centers, Institutes, or Bureaus
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5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

*Requires "Section V: Program Curriculum" of Abbreviated Template

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: 5/20/16

Printed Name: Jeffery Olson, Senior VP of Academic Affairs

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

Program Request - Abbreviated Template
UTAH VALLEY UNIVERSITY
Minor in National Security Studies
05/27/2016

Section I: Request

The Department of Criminal Justice in the College of Aviation and Public Services at Utah Valley University requests permission to offer a Minor in National Security Studies effective Fall 2017.

Section II: Need

National security is a vital and emerging academic discipline and career path. Institutions across the country have added successful courses and programs in national security, in part to support an emergent national security sector. Utah has experienced tremendous growth in both the public and private national security sector, with companies such as Boeing, ATK, and Northrup Grumman and with major industry supply chain players like Exelis, Janicki, and Rockwell Collins, along with installations such as the National Security Agency (NSA) Utah Data Center and Hill Air Force Base.² As a result, Utah's political leadership has emphasized the need for Utah to meet the demands of this dynamic and growing field.³ Governor Herbert commented in 2014 that there is currently a gap between what the marketplace needs and what is being produced and underscored the importance that education plays in bridging that gap.⁴ Yet, while institutions across the country have added successful centers and programs in national security to support an emergent national security sector, Utah has not offered a national security program or hosted a national security-focused center at any of its institutions of higher education to meet this vital need.

UVU's National Security Studies (NSS) Minor, in collaboration with UVU's Cybersecurity and Homeland Security programs, will enable UVU to meet the employment requirements of this growing field. Whether students are interested in counterterrorism, homeland security, intelligence gathering and analysis, cybersecurity, foreign relations, law and politics, diplomacy, international development, or criminal justice, the NSS Minor will provide the education and skills needed to succeed in these professions.

Careers related to national security are among the fastest growing professions in the country, with opportunities in both the public and private sectors in Utah and across the country. The NSS Minor will equip students for a wide range of in-demand and high-paying employment opportunities, including analysts, policy-makers, diplomats, public servants, journalists, computer technicians, cyber specialists, military officers, scientists, advocates, intelligence analysts and agents, engineers, defense contractors, law enforcement officers, technicians, linguists, consultants, emergency management directors, information security analysts, geographers, historians, political scientists, social scientists, educators, public relations specialists, writers, and editors.

² See e.g., Governor will honor state's aerospace industry at Layton luncheon, STANDARD EXAMINER, Sep. 9, 2014, available at <http://www.standard.net/Business/2014/09/09/Top-of-UTah-firms-recognized-as-part-of-Aerospace-Week.html>; Utah celebrates National Aerospace Week, STANDARD EXAMINER, Sept. 16, 2014, available at <http://www.standard.net/Business/2014/09/16/Utah-celebrates-National-Aviation-Week.html>.

³ Id.

⁴ Id.

At the 2014 Utah aerospace and national defense industry conference it was reported that Utah's aerospace and defense economic cluster represents about 4.5% of all state wages, with an average wage in the industry at roughly 90 percent higher than Utah's average annual wage.⁵ Using the Classification of Instructional Programs (CIP) Code (45.0902) and the Standard Occupational Classification (SOC) Codes, the national security subject area represents at least twenty unique occupational areas, and 2,319 jobs available from twenty-five different employers in Utah over the time period of May 1, 2014 to April 30, 2015. The average median salary over the twenty SOC occupations in Utah is \$63,855.50, compared with a general median household income in Utah of \$53,046. All but one of those twenty occupations are projected to experience significant increase in demand in Utah, and thirteen of the twenty were stable or experienced growth in 2013-2014. A number of additional openings were not included in the SOC data at the National Security Agency and a variety of national security sector companies, including L-3 Communications and Northrop Grumman.

Nationwide, the national security sector is also very strong and growing. Thousands of public and private sector national security jobs are available in Washington, D.C. and the surrounding area, and in areas with a strong military or national security presence (e.g., Florida, Texas, Colorado, Nebraska, California, Hawaii, Virginia). Additional job opportunities in national security are available in other areas across the United States and in various locations abroad.

Utah's unique set of strengths has made the state a common destination and recruitment source for national security employers. Utah has the highest per capita foreign language literacy in the nation, a significantly high number of students and graduates with international experience, a commitment to technological enterprise and innovation, a population with proven devotion to civic service and concern about national security issues, and a reputation for integrity and work ethic.⁶ In addition, Utah has developed a corridor of cyber business along the Wasatch Front, commonly referred to as the "Silicon Slopes," just twenty minutes north of UVU's main campus.

Combined, these advantages make Utah an ideal place to prepare students for successful careers in the burgeoning national security sector. Gary Harter, Executive Director of Veteran's Affairs with the Utah Governor's Office of Economic Development, comments that Utah is well known for its "rich history in defense, information technology, and in a lot of other business sectors, as well," and that "a number of companies tell us they like coming to Utah, and they like hiring in Utah, because they find good success with employees in Utah who can readily get security clearances. Those strong demographics include a large population of young people and a well-educated workforce."⁷

The NSS Minor will be the first of its kind in Utah, and one of the only programs in the Intermountain region. Similar programs across the country have been extremely successful and have provided academic and career opportunities for students while bringing positive attention and prestige to the state and campus. The NSS Minor will position UVU to become a regional hub for national security issues—particularly in coordination with UVU's existing, and complementary, cybersecurity and emergency services programs.

⁵ Id.

⁶ See e.g., Suzanne Struglinski, "Utahns' Language Skills Draw NSA," DESERET NEWS, Feb. 3, 2006, available at <http://www.deseretnews.com/article/635181316/Utahns-language-skills-draw-NSA.html?pg=all>.

⁷ See Lindy Kizer, Top 5 Cities for Cyber Security Jobs, CLEARANCEJOBS.COM, May 23, 2013 available at <http://news.clearancejobs.com/2013/05/23/top-5-cities-for-cyber-security-jobs/>.

UVU is already well known for its focus on public services and practical education and this program will complement the successful programs and institutes already on campus.

The NSS Minor will provide an interdisciplinary program that prepares students for public and private sector national security careers through acquisition of subject matter expertise and analytical skills. This minor will expose students to the wide variety of critically important security challenges and issues faced in the twenty-first century, such as terrorism and cyber security, nuclear proliferation and weapons of mass destruction, piracy and global pandemics, sovereignty and the use of force, and civil liberties and the rule of law. Students will also acquire skills such as critical thinking, writing, briefing, and analysis techniques specifically tailored for the national security field, but applicable in many others. Whether students are interested in counterterrorism, homeland security, intelligence gathering and analysis, foreign relations, law and politics, diplomacy, or international development, the NSS Minor will provide insight and skills needed to succeed in these professions.

The NSS Minor would be a perfect fit for UVU's mission, core values, and institutional role as a regional state university. The minor will focus on teaching excellence in the classroom and providing students with practical engaged learning and career opportunities. Because the NSS Minor will be the only one of its kind in the state, and because Utah has a vibrant and growing national security sector, UVU will provide critical regional educational needs. The NSS Minor will prepare professionally competent people of integrity to serve and contribute to a vitally important field in Utah and across the country.

There is significant student interest and demand for a Center for National Security Studies. More than 70 students contacted the NSS director via email, office visit, or phone call to express interest in national security opportunities at UVU. The director of the UVU Veterans Center estimates that many of UVU's 700+ veterans will be interested in national security courses, events, and career opportunities. Similarly, UVU's ROTC leadership estimates that many of their cadets would be interested in national security studies classes, events, activities, and careers. In mid-January 2016 a student in the NSS Director's class started a National Security Studies Society and chartered it as a UVU club. The club already has more than 80 members. UVU also has an active and popular Cybersecurity club. In February 2016, the CIA held a career information session, at which more than 150 students attended. Throughout the Spring 2016 semester, UVU hosted four national security speakers with high attendance for each. The department and NSS director continue to receive frequent questions about national security courses and other opportunities.

Further support of interest in an NSS Academic Program is based on the number of students who have enrolled in classes that would constitute likely electives for an NSS minor. From 2010 to 2014, 3900 students were enrolled in 17 courses from criminal justice, political science, emergency services, constitutional studies, history, legal studies, and peace and justice studies. If POLS 1100 is included, a course from which the NSS academic program will certainly recruit for its program that number jumps to 15,461 students. Additionally, several courses relevant to national security studies from military science, political science, and criminal justice have been added since 2014 and would increase these already large numbers.

UVU's NSS Minor will provide students with the skills and experience required to fill or advance in high-demand and high-paying national security positions in government, the defense industry, the private sector, research institutions, and non-governmental and international organizations. Students will also be assisted

in preparing for academic careers and advanced degree programs, such as law, international relations, public administration, and political science.

Section III: Institutional Impact

The Minor in National Security Studies will be administered out of the Criminal Justice Department, within the College of Aviation and Public Services. Faculty members are already in place for this program and no new physical facilities or modifications to existing facilities are anticipated at this time. In addition, adding a Minor in National Security Studies will not require any expenses for new equipment. It is anticipated that some or all of the courses required for the Minor in National Security Studies will be made available on-line within three years.

Section IV: Finances

No additional expenses are anticipated by adding a Minor in National Security Studies. The faculty member responsible for teaching the new NSS courses is already in place and departments across campus already teach the proposed electives.

Section V: Program Curriculum

*****THIS SECTION OF THE TEMPLATE REQUIRED FOR EMPHASES, MINORS, AND CERTIFICATES ONLY*****

All Program Courses (with New Courses in Bold)

Course Prefix and Number	Title	Credit Hours
Matriculation Requirement: Admitted to bachelor degree program at UVU.		
Complete one of the following:		
CJ 1010	Introduction to Criminal Justice (3.0)	
POLS 1100	American National Government (3.0)	
Sub-Total		3
Discipline Core Requirements		
CJ 2010	Introduction to National Security	3
CJ 301R	National Security Area Studies	3
CJ 4600	National Security Law	3
CJ 475R	Current Topics in Criminal Justice	3
Sub-Total		12
Elective Requirements: Complete 9 Credits from the following:		
CJ 4210	Law of War (3.0)	
CNST 4795	Civil Rights and Civil Liberties (3.0)	
CJ 4160	Constitutional Criminal Rights (3.0)	
CJ 3340	Terrorism—Radical Fundamentalism and Terrorism Financing (3.0)	
ESMG 310G	Introduction to Homeland Security (3.0)	

Course Prefix and Number	Title	Credit Hours
HIST 3440	The History of World War I (3.0)	
HIST 345G	The History of World War II (3.0)	
HIST 3460	US Military History (3.0)	
HIST 4140	Genocide in the Twentieth Century (3.0)	
HIST 430G	Violence and Social Conflict in Latin America (3.0)	
IT 2700	Information Security Fundamentals (3.0)	
MILS 259R	Current Topics in Military Science (3.0)	
MILS 4200	The Profession of Arms I (3.0)	
MILS 4210	The Profession of Arms II (3.0)	
PJST 3020	The Ethics of War and Peace (3.0)	
PJST 3100	Introduction to Human Security (3.0)	
PJST 3400	Conflict Transformation: Resolution and Sustainable Peace (3.0)	
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POLS 3610	International Organization (3.0)	
POLS 4500	International Conflict and Security (3.0)	
POLS 4610	International Law and Relations (3.0)	
	Other course approved by department, advisor, or director	
Sub-Total		9
Total Number of Credits		24

Program Schedule

Spring of First Year	Course Title	Credit Hours
<i>CJ 1010 or POLS 1100</i>	Introduction to Criminal Justice or American Nat'l Govt.	3
	Semester total:	3
Fall of Second Year	Course Title	Credit Hours
<i>CJ 2010</i>	Introduction to National Security	3
<i>CJ 301R</i>	National Security Area Studies	3
	Semester total:	6
Spring of Second Year	Course Title	Credit Hours

<i>CJ 475R</i>	Current Topics in Criminal Justice	3
<i>CJ 4600</i>	National Security Law	3
	Semester total:	6
Fall of Third Year	Course Title	Credit Hours
	Elective	3
	Semester total:	3
Spring of Third Year	Course Title	Credit Hours
	Elective	3
	Elective	3
	Semester total:	6

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah Valley University
Proposed Title: Center for National Security Studies
School or Division or Location: College of Aviation and Public Services
Department(s) or Area(s) Location: Department of Criminal Justice
Proposed Beginning Date (for new programs): Fall 2017
Institutional Board of Trustees' Approval Date: Pending

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar		
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5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

*Requires "Section V: Program Curriculum" of Abbreviated Template

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: 5/20/16

Printed Name: Jeffery Olson, Senior VP of Academic Affairs

Program Request - Abbreviated Template
UTAH VALLEY UNIVERSITY
Center for National Security Studies
05/26/2016

Section I: Request

Utah Valley University requests permission to offer a new Center for National Security Studies effective Fall 2017.

Section II: Need

National security is a vital and emerging academic discipline and career path. Over the past twenty years, Utah has experienced tremendous growth in both the public and private national security sector, with companies such as Boeing, ATK, and Northrup Grumman and with major industry supply chain players like Exelis, Janicki, and Rockwell Collins, along with installations such as the National Security Agency (NSA) Utah Data Center and Hill Air Force Base.¹ As a result, Utah's political leadership has emphasized the need for Utah to meet the demands of this dynamic and growing field.² Governor Herbert commented in 2014 that there is currently a gap between what the marketplace needs and what is being produced and underscored the importance that education plays in bridging that gap.³ Yet, while institutions across the country have added successful centers and programs in national security to support an emergent national security sector, Utah has not offered a national security program or hosted a national security-focused center at any of its institutions of higher education to meet this vital need.

The CNSS would be a perfect fit for UVU's mission, core values, and institutional role as a regional state university. The CNSS would offer an active and vibrant academic environment on campus for students and the UVU community to examine the wide variety of critically important security challenges and issues faced in the twenty-first century such as terrorism, cybersecurity, nuclear proliferation, weapons of mass destruction, piracy, global pandemics, erosion of sovereignty, the use of force, civil liberties, and the rule of law. The CNSS would be a nonpartisan academic institution that focuses on the instruction, examination, and discussion of the issues related to the field of U.S. national security. The CNSS would employ an interdisciplinary approach to examine both the theoretical and practical aspects of national security policy. The aim of the CNSS would be to equip a new generation of citizens and leaders to understand and engage in national security issues. The CNSS would provide students with extensive study, discussion, and engaged learning opportunities in the national security field. The CNSS will focus on achieving teaching excellence in the classroom and providing students with practical engaged learning and career opportunities. Students would acquire skills such as critical thinking, writing, briefing, and analysis techniques specifically tailored for the national security field but applicable in many others.

The CNSS, in collaboration with UVU's cybersecurity and homeland security programs, will enable UVU to fill critical regional educational needs and meet the employment requirements of this growing field. Careers

¹ See e.g., Governor will honor state's aerospace industry at Layton luncheon, STANDARD EXAMINER, Sep. 9, 2014, available at <http://www.standard.net/Business/2014/09/09/Top-of-UTah-firms-recognized-as-part-of-Aerospace-Week.html>; Utah celebrates National Aerospace Week, STANDARD EXAMINER, Sept. 16, 2014, available at <http://www.standard.net/Business/2014/09/16/Utah-celebrates-National-Aviation-Week.html>.

² Id.

³ Id.

related to national security are among the fastest growing professions in the country, with opportunities in both the public and private sectors in Utah and across the country. The CNSS will equip students for a wide range of in-demand and high-paying employment opportunities, including analysts, policy-makers, diplomats, public servants, journalists, computer technicians, cyber specialists, military officers, scientists, advocates, intelligence analysts and agents, engineers, defense contractors, law enforcement officers, technicians, linguists, consultants, emergency management directors, information security analysts, geographers, historians, political scientists, social scientists, educators, public relations specialists, writers, and editors.

At the 2014 Utah aerospace and national defense industry conference it was reported that Utah's aerospace and defense economic cluster represents about 4.5% of all state wages, with an average wage in the industry at roughly 90 percent higher than Utah's average annual wage.⁴ Using the Classification of Instructional Programs (CIP) Code (45.0902) and the Standard Occupational Classification (SOC) Codes, the national security subject area represents at least twenty unique occupational areas, and 2,319 jobs available from twenty-five different employers in Utah over the time period of May 1, 2014 to April 30, 2015. The average median salary over the twenty SOC occupations in Utah is \$63,855.50, compared with a general median household income in Utah of \$53,046. All but one of those twenty occupations are projected to experience significant increase in demand in Utah, and thirteen of the twenty were stable or experienced growth in 2013-2014. A number of additional openings were not included in the SOC data at the National Security Agency and a variety of national security sector companies, including L-3 Communications and Northrop Grumman.

Nationwide, the national security sector is also very strong and growing. Thousands of public and private sector national security jobs are available in Washington, D.C. and the surrounding area, and in areas with a strong military or national security presence (e.g., Florida, Texas, Colorado, Nebraska, California, Hawaii, Virginia). Additional job opportunities in national security are available in other areas across the United States and in various locations abroad.

Utah's unique set of strengths has made the state a common destination and recruitment source for national security employers. Utah has the highest per capita foreign language literacy in the nation, a significantly high number of students and graduates with international experience, a commitment to technological enterprise and innovation, a population with proven devotion to civic service and concern about national security issues, and a reputation for integrity and work ethic.⁵ In addition, Utah has developed a corridor of cyber business along the Wasatch Front, commonly referred to as the "Silicon Slopes," just twenty minutes north of UVU's main campus.

Combined, these advantages make Utah an ideal place to prepare students for successful careers in the burgeoning national security sector. Gary Harter, Executive Director of Veteran's Affairs with the Utah Governor's Office of Economic Development, comments that Utah is well known for its "rich history in defense, information technology, and in a lot of other business sectors, as well," and that "a number of companies tell us they like coming to Utah, and they like hiring in Utah, because they find good success

⁴ Id.

⁵ See e.g., Suzanne Struglinski, "Utahns' Language Skills Draw NSA," DESERET NEWS, Feb. 3, 2006, available at <http://www.deseretnews.com/article/635181316/Utahns-language-skills-draw-NSA.html?pg=all>.

with employees in Utah who can readily get security clearances. Those strong demographics include a large population of young people and a well-educated workforce.”⁶

UVU's CNSS will provide students with the skills and experience required to fill or advance in high-demand and high-paying national security positions in government, the defense industry, the private sector, research institutions, and non-governmental and international organizations. The CNSS will be the first of its kind in Utah, and aside from a center in New Mexico, the only center in the Intermountain region. Similar centers and programs across the country have been extremely successful and have provided academic and career opportunities for students while bringing positive attention and prestige to the state and campus. The CNSS will position UVU to become a regional hub for national security issues—particularly in coordination with UVU's existing, and complementary, cybersecurity and emergency services programs. UVU is already well known for its focus on public services and practical education and this program will complement the successful programs and institutes already on campus.

The CNSS will position students to take jobs in the growing national security sector in Utah and across the country. In addition, the CNSS will seek to offer opportunities to give existing professionals a path to promotion within their current national security jobs. Students will also be assisted in preparing for academic careers and advanced degree programs, such as law, international relations, public administration and service, and political science. The CNSS program will offer an active and vibrant scholarly and academic environment on campus for the students, faculty, staff, and community to engage with these complex issues. Whether students are interested in counterterrorism, homeland security, intelligence gathering and analysis, foreign relations, law and politics, diplomacy, international development, or criminal justice, the CNSS will provide the skills needed to succeed in these professions.

There is significant student interest and demand for a Center for National Security Studies. More than 70 students contacted the NSS director via email, office visit, or phone call to express interest in national security opportunities at UVU. The director of the UVU Veterans Center estimates that many of UVU's 700+ veterans will be interested in national security courses, events, and career opportunities. Similarly, UVU's ROTC leadership estimates that many of their cadets would be interested in national security studies classes, events, activities, and careers. In mid-January 2016 a student in the NSS Director's class started a National Security Studies Society and chartered it as a UVU club. The club already has more than 80 members. UVU also has an active and popular Cybersecurity club. In February 2016, the CIA held a career information session, at which more than 150 students attended. Throughout the Spring 2016 semester, UVU hosted four national security speakers with high attendance for each. The department and NSS director continue to receive frequent questions about national security courses and other opportunities.

Section III: Institutional Impact

The Center for National Security Studies will be led by the current director of the Office of National Security Studies and administered out of the Criminal Justice Department, within the College of Aviation and Public Services. No new physical facilities or modifications to existing facilities are anticipated at this time. Adding a Center for National Security Studies will not require any expenses for new equipment.

⁶ See Lindy Kizer, Top 5 Cities for Cyber Security Jobs, CLEARANCEJOBS.COM, May 23, 2013 available at <http://news.clearancejobs.com/2013/05/23/top-5-cities-for-cyber-security-jobs/>.

Section IV: Finances

The faculty director position is already in place. Some administrative and promotional expenses are anticipated by adding a Center for National Security Studies. The CNSS will be required to obtain private/external funds to support programmatic costs.