

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

Institution Submitting Request: University of Utah
Proposed Program Title: Transcribed Emphasis: Information Systems for QAMO major
Sponsoring School, College, or Division: David Eccles School of Business
Sponsoring Academic Department(s) or Unit(s): Department of Finance
Classification of Instructional Program Code¹ : 52.0301
Min/Max Credit Hours Required of Full Program: 50 / 65
Proposed Beginning Term²: Fall 2018
Institutional Board of Trustees' Approval Date:

Program Type:

<input type="checkbox"/>	Certificate of Proficiency	<input 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 checked="" type="checkbox"/>	NEW Emphasis for Regent-Approved Program <i>Credit Hours for NEW Emphasis Only:</i> 15 / 15 <i>Current Major CIP:</i> 45.0603 <i>Current Program Title:</i> Quantitative Analysis of Markets and Organizations <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.

Please type your first and last name _____ Date: _____

☐ I understand that checking this box constitutes my legal signature.

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**

Section I: The Request

University of Utah requests approval to offer the following Emphasis: Transcribed Emphasis: Information Systems for QAMO major effective Fall 2018. This program was approved by the institutional Board of Trustees on .

Section II: Program Proposal/Needs Assessment

Program Description/Rationale

Present a brief program description. Describe the institutional procedures used to arrive at a decision to offer the program. Briefly indicate why such a program should be initiated. State how the institution and the USHE benefit by offering the proposed program. Provide evidence of student interest and demand that supports potential program enrollment.

The Department of Finance requests authorization to offer a new transcribed emphasis in Information Systems for students who complete the Quantitative Analysis of Markets and Organizations major.

The purpose of the Quantitative Analysis of Markets & Organizations (QAMO) degree is to give students a deep, rigorous and technical education in the application of economic analysis to business decision-making. The degree is built around four points of differentiation from other degrees in economics and business at the University of Utah:

- First, the program is more quantitatively demanding, and is designed to build students' analytical, technical and problem-solving skills.
- Second, the program emphasizes econometrics; these skills will give students an ability to answer real-world questions using real-world data.
- Third, the program emphasizes the analytical tools of game theory, a toolkit that is essential for understanding strategic decision-making.
- Fourth, the program focuses on the business applications of economics, with courses that blend economics and game theory with econometric analysis of real-world data.

At present, interested students can elect emphases in finance, accounting, management, marketing, and entrepreneurship as part of the QAMO major. This new proposal adds to the menu of emphases available to QAMO students. Students who complete the QAMO major will have many career options to choose from, including consulting, private equity, and data analytics. Formal training in information systems is likely to be useful for any of the above career paths. The University of Utah's Information Systems course offerings are strong, and the combination of econometrics and strategic thinking skills (from the QAMO major) with the foundational understanding of database fundamentals, data mining, and system design (from Information Systems) is likely to be a powerful combination.

This major and emphasis may also be useful for students interested in pursuing a PhD in Information Systems. In some fields of Information Systems scholarship, researchers make use of models from game theory and information economics, and techniques from econometrics. This new emphasis (perhaps paired with an IS-themed honors thesis) would be excellent preparation for an economics-focused IS PhD.

Learning objectives for the QAMO IS emphasis:

Students should master the tools needed to apply information systems to business decisions.

Students should have experience with software tools such as collaboration software, business intelligence, networks, e-commerce, security, and process management software.

Students should master principles of database management and queries using SQL.

Students should be able to perform basic data-mining tasks using big-data techniques.

This proposal has been circulated among and discussed by the faculty of both departments. The Finance Department faculty voted 16-0 in favor of this proposal on April 4, 2018. The Operations and Information Systems Department faculty voted 21-0 in favor of this proposal on March 28, 2018. The School of Business faculty voted in favor of this proposal on September 4, 2018.

Labor Market Demand

Provide local, state, and/or national labor market data that speak to the need for this program. Occupational demand, wage, and number of annual openings information may be found at sources such as Utah DWS Occupation Information Data Viewer (jobs.utah.gov/jsp/wi/utalmis/gotoOccinfo.do) and the Occupation Outlook Handbook (www.bls.gov/oco).

The tools of economic analysis are in great demand in the labor market. Recently, the Brookings Institution has, through its Hamilton Project, published an online "Earnings by Major" interactive tool showing how lifetime earnings (from Census data) compare across different levels of educational attainment (high school vs. associates degree vs. bachelors degree) and across different college majors. The authors conclude: "Majors that emphasize quantitative skills tend to have graduates with the highest lifetime earnings. The highest-earning majors are those in engineering fields, computer science, operations and logistics, physics, economics, and finance."

The tool shows that

- Median annual earnings for full-time employed mechanical engineering majors 20 years after the start of the individual's career: \$100,000 (in 2014 dollars).
- Median annual earnings for full-time employed economics majors at the same point in the individual's career: \$94,000
- Computer science: \$90,000
- Finance: \$88,000

While the University of Utah's QAMO major is still too new to have any data on job placements for graduates, we can examine data from a similar program. Indiana University's Kelley School of Business reports that 2013 business economics graduates obtained employment in a variety of industries:

- Consulting (41% of the Class of 2013)
- Banking and Finance (16%)
- Sales Management (10%)
- Public Accounting (10%)
- Operations (6%)
- Information Technology (4%)
- Other (12%)

Students entering careers in consulting, operations, or information technology are likely to benefit from the training in database fundamentals, data mining, and system design offered by this emphasis.

Consistency with Institutional Mission/Impact on Other USHE Institutions

Explain how the program is consistent with the institution's Regents-approved mission, roles, and goals. Institutional mission and roles may be found at higheredutah.org/policies/policyr312/ . Indicate if the program will be delivered outside of designated service area; provide justification. Service areas are defined in higheredutah.org/policies/policyr315/ .

The mission of the University of Utah is to serve the people of Utah and the world through the discovery, creation and application of knowledge; through the dissemination of knowledge by teaching, publication, artistic presentation and technology transfer; and through community engagement. This emphasis is consistent with the Regents-approved mission because we will be disseminating knowledge about information systems.

This program will not be offered outside the University of Utah's designated service area. We believe the impact on other USHE institutions will be negligible. Our proposal simply adds to the menu of emphases available to University of Utah's QAMO students.

Finances

What costs or savings are anticipated in implementing the proposed program? If new funds are required, indicate expected sources of funds. Describe any budgetary impact on other programs or units within the institution.

We anticipate the incremental enrollment in School of Business courses from students selecting the Information Systems Emphasis will be small. As such, this new emphasis will not require adding additional sections of existing courses. We do not anticipate any budgetary impact to arise as a result of this emphasis.

Section III: Curriculum

Program Curriculum

List all courses, including new courses, to be offered in the proposed program by prefix, number, title, and credit hours (or credit equivalences). Indicate new courses with an X in the appropriate columns. The total number of credit hours should reflect the number of credits required to receive the award. **For NEW Emphases, skip to emphases tables below.**

For variable credits, please enter the minimum value in the table below for credit hours. To explain variable credit in detail as well as any additional information, use the narrative box below.

Course Number	NEW Course	Course Title	Credit Hours
General Education Courses (list specific courses if recommended for this program on Degree Map)			
General Education Credit Hour Sub-Total			
Required Courses			
Add Another Required Course			
Required Course Credit Hour Sub-Total			
Elective Courses			
Add Another Elective Course			
Elective Credit Hour Sub-Total			
Core Curriculum Credit Hour Sub-Total			0

Are students required to choose an emphasis for the already-existing degree? Yes or <input checked="" type="checkbox"/> No

Course Number	NEW Course	Course Title	Credit Hours
Name of Emphasis:		Information Systems	
IS 4410/4411		Intro to IS (or Honors version)	3
IS 4420		Database Fundamentals	3
IS 4482		Business Data Mining	3
		Choose two classes from the following:	
IS 4415		Data Structures & Java	3
IS 4430		Systems Analysis & Design	3
IS 4440		Networking & Servers	3
IS 4460		Web Based Applications	3
IS 4470		Telecommunications & Security	3
IS 4480		Data Warehouse Design	3
IS 4999		Honors Thesis	3
Add Another Emphasis Course			
Emphasis Credit Hour Sub-Total			15
Total Number of Credits to Complete Program			15

Propose a NEW Emphasis to an existing Regent approved program

Program Curriculum Narrative

Describe any variable credits. You may also include additional curriculum information, as needed.

Students must take three required classes, and then select two courses from a select list of OIS and IS classes.

Degree Map

Degree maps pertain to undergraduate programs ONLY. Provide a degree map for proposed program. Degree Maps were approved by the State Board of Regents on July 17, 2014 as a degree completion measure. Degree maps or graduation plans are a suggested semester-by-semester class schedule that includes prefix, number, title, and semester hours. For more details see <http://higheredutah.org/pdf/agendas/201407/TAB%20A%202014-7-18.pdf> (Item #3).

Please cut-and-paste the degree map or manually enter the degree map in the table below

First Year Fall	Cr. Hr.	First Year Spring	Cr. Hr.
Math 1210 - Calculus I	4	Math 1220 - Calculus II	4
BUS 1051 - Honors Business Foundations	3	General Education (HF)	3
General Education (WR2)	3	General Education (FF)	3
General Education (FF)	3	General Education (AI)	3
General Education (HF)	3	General Education	3
Total	16	Total	16
Second Year Fall	Cr. Hr.	Second Year Spring	Cr. Hr.
General Education (IR)	3	General Education (SF/AS)	3
General Education (CW)	3	General Education	3
General Education (SF)	3	General Education	3
General Education (DV)	3	General Education	3
General Education	3	General Education	3
Total	15	Total	15
Third Year Fall	Cr. Hr.	Third Year Spring	Cr. Hr.
ECON 4011 - Int Microeconomic Analysis	3	ECON 4651 - Principles of Econometrics	3
ECON 3201 - Money and Banking	3	QAMO 4010 - Economics of Strategy	3
QAMO 3010 - Business Economics	3	IS 4420 - Database Fundamentals	3
ECON 3640 - Probability and Stat Inference	3	IS 4482 - Business Data Mining	3
IS 4411 - Honors Intro to IS	3	QAMO 3020 - Game Theory	3
Total	15	Total	15
Fourth Year Fall	Cr. Hr.	Fourth Year Spring	Cr. Hr.
QAMO 3030 - Business Econometrics I	3	QAMO 3040 - Business Econometrics II	3
QAMO 3050 - Econ and the Bus Disciplines	3	QAMO 4020 - Personnel Economics	3
QAMO 4010 - Economics of Strategy	3	QAMO 4030 - Econ of Organization	3
IS 4415 - Data Structures & Java	3	QAMO 4040 - Managing in Non-Market Env	3
IS 4430 - Systems Analysis & Design	3	General Education	3
Total	15	Total	15