University of Hawai'i Code Request Form for Academic Programs

REPLACE PROGRAM CODE

Form #CR-AP2 Modified June 2017

			Date:		
REQUESTOR CON	TACT INFORMAT	ΓΙΟΝ			
Name		Campus			
Title		Email			
Office/Dept		Phone			
NEW PROGRAM	CODE TO CREATE	<u>-</u>			
Institution		Campus Effective Term			
Level	Code	Effective ferm			
	(Max. Characters)	Description	Check if requesting new code:		
College	(2)		See Banner form STVCOLL		
Department	(4)		See Banner form STVDEPT		
Degree/Certificate			See Banner form STVDEGC		
Major			See Banner form STVMAJR		
Concentration			See Banner form STVMAJR		
Minor			See Banner form STVMAJR		
If a similar major/cor	centration code exist	s in Banner, please list the code:			
Justification to warra	nt a new major/conce	entration code similar to an existing major,	/concentration code:		
Is this major/concent	ration code being use	ed the same way at the other UH campuses	s? Yes No		
Should this program	be available for applic	cants to select as their planned course of st	tudy on the Yes No		
• • • • •		e code as their only program of study.			
RULES PERTAININ	G TO FINANCIAL	AID AND 150% DIRECT SUBSIDIZE	ED LOAN LIMIT LEGISLATION		
Is 50% or greater of t Campus?	he classes in this prog	gram offered at a location other than the H	lome Yes No		
Is this program/majo	r/certificate financial	aid eligible?	Yes No		
program)?	qualify as a Gainful Em	nployment Program (Title IV-eligible certifi	cate Yes No		
Program Length (In academic years; decimals and/or written publication.	are acceptable.) The length o	of the program should match what is published by the camp	us in any online		
Special Program Desi	_		B N P T U		
Required Terms of Er	Ť	AO Program Code Request webpage Fall Spring	Summer Extended		

IRAO USE ONLY: DATE RECEIVED

University of Hawai'i Code Request Form for Academic Program Codes

REPLACE PROGRAM CODE

EXISTING PROGR	AM CODE TO	REPLACE				
Program Code		Program	n Description			
Institution		Campus				
College		Departn	nent			
Level						
Are current students	le?		Yes	☐ No		
Should the old progra	am code be availa	able for use in Banner?	r?	[Yes	☐ No
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This will turn off the g modules.	general student (e <u>f</u>	fects Banner form SGASTL	DN) and academic h	istory (effects Banner)	form SHADEG	GR) Banner
ADDITIONAL CON	MENTS					
ATTACHMENTS						
BOR Approved: Associ	iate, Bachelor an	d Graduate Degrees, an	d sole credential	certificates		
BOR Meeting Mine Academic Planning and		g Documents OR Memo	o with President's	Approval, with cc to) Vice Presid	lent for
Curriculum						
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Curriculum	Lelior to vice Pres	Siderit for Academic Pla	filling and Policy I	egarding program a	Ction.	
Carriculani						
VERIFICATIONS						
By signing below, I ve	rify that I have ro	eviewed and confirm th	e above informat	ion that is pertinen	t to my posi	tion.
Registrar (Print Name)		Financial Aid Office (Print Name)	r	For Community verification of co	onsultation	with
				Tammi Oyadoma	ari-Chun	
Signature	Date	 Signature	Date	Signature		Date

Form modified: June 2017



Department of Economics

Timothy J. Halliday Professor and Chair halliday@hawaii.edu Phone: 808-956-8615

July 8, 2020

MEMORANDUM

TO: David Lassner

President

VIA: Michael Bruno Wichael Bruno

Provost

VIA: Laura Lyons Jam F. Gm

Interim Associate Vice Chancellor for Academic Affairs

VIA: Denise Konan

Dean, College of Social Sciences

FROM: Timothy Halliday ~ M____

Chair and Professor, Department of Economics

SUBJECT: REQUEST TO RECONSIDER APPROVAL OF NEW CIP CODE FOR THE

MA AND PHD IN ECONOMICS

It has come to our attention that the memo dated May 9, 2020, requesting to change the Classification of Instructional Programs (CIP) code for the Economics MA and PhD Programs from 45.0606 ("Economics, General") to 45.0603 ("Econometrics and Quantitative Economics") has not been moved forward for approval. We ask you to reconsider our request based on the additional information provided below, which clearly demonstrates the appropriateness of this designation for our graduate programs.

In recent decades, graduate programs in Economics have become increasingly oriented around STEM and quantitative methods. This shift in disciplinary focus necessitated the creation of the new CIP code in 2012, as part of a broader expansion of the list of STEM degree programs. Many competitive US Economics graduate programs have since adopted the new STEM CIP code. These institutions include Carnegie Mellon, Emory University, Georgia Tech, MIT, Pomona College, UC Davis, UC Berkeley, Williams College, and Yale, among many others. In the attached support document, we have provided curricular detail that demonstrates the clear course and program alignment between our graduate programs and those programs that have already transitioned to the new CIP code. It should be noted that they did not change their program or department names in the process, and we intend to follow this practice. In fact, there are almost no PhD programs titled "Econometrics," "Quantitative Economics," or "Econometrics and Quantitative Economics" among U.S. universities.

D. Lassner July 8, 2020 Page 2

As our peer institutions are increasingly shifting to the new CIP code, following suit is critical for both enhancing the employment opportunities of our future graduates, and enabling the department to continue to recruit strong candidates to the program in this dynamic educational landscape. In light of the additional information provided here, we hope you will consider signing the original approval request. If you have any questions or concerns regarding this request, please feel free to contact me at any time at halliday@hawaii.edu.

Attachment:

- 1. Supporting Materials for CIP Code Change Request
- 2. May 9, 2020 memo titled, "Approval of New CIP Code for MA and PhD in Economics"

c: April Nozomi Goodwin, Program Officer, OVCAA

Approved: Change in Classification of Instructional Programs (CIP) code for the Economics MA and PhD Programs from 45.0606 ("Economics, General") to 45.0603 ("Econometrics and Quantitative Economics"), which was based on discussions with the UHM Office of the Vice Provost for Academic Excellence and the UH System Office of the Vice President for Academic Strategy. Please also refer to the initial action memo dated May 9, 2020.

David Lassner,	
UH President	Date

ATTACHMENT 1: Supporting Materials for CIP Code Change Request

July 2020

Nori Tarui Graduate Chair, Department of Economics

This document provides supplementary details of our Department's request for the new CIP code for MA and PhD in Economics. The bottom line is that (1) many other competitive Economics graduate programs in the United States have been adopting the new CIP code; (2) the graduate program content, including the required coursework, is identical for all practical purposes between our program at UHM and others that have the new CIP code; and (3) the economics programs in the peer institutions with the new CIP Code did not change their program names—they are titled "Economics Program."

The supporting materials consist of the following.

- 1. Definition of the new CIP Code and comparison of required graduate coursework at UHM Economics and other U.S. economics graduate programs with the new STEM code
- 2. List of NSF approved STEM fields
- 3. On the mathematical rigor of the economics graduate coursework
- 4. Sample syllabi and exams of the required economics graduate courses at UHM
- 5. Sample recent research papers by Economics graduate students
- 6. The names of the economics graduate programs in other U.S. universities that have adopted the new CIP Code
- Definition of the new CIP Code and comparison of required graduate coursework at UHM Economics and other U.S. economics graduate programs with the new STEM code

According to the National Center for Education Statistics, "Econometrics and Quantitative Economics" (CIP Code 45.0603) is defined as the following.

"A program that focuses on the systematic study of mathematical and statistical analysis of economic phenomena and problems. Includes instruction in economic statistics, optimization theory, cost/benefit analysis, price theory, economic modeling, and economic forecasting and evaluation." (Source: https://nces.ed.gov/ipeds/cipcode/cipdetail.aspx?y=55&cip=45.0603)

Throughout the United States among Research I Universities, the coursework for master's and PhD programs in economics consists of similar courses that include systematic study of mathematical and statistical analysis of economic phenomena and problems. The coursework for UHM Economics PhD and MA is no exception. The content of the courses is very similar as well because economics graduate coursework is highly standardized, with similar textbooks

used for micro and macro theory and econometrics across many competitive economics graduate programs. Over the last decade, the programs and the economics discipline as a whole have increased its rigor in terms of theory, mathematics, and econometrics as data science.

A typical set of required courses for graduate economics study consists of a year-long sequence in microeconomic theory, a year-long sequence in macroeconomic theory, a year-long sequence in econometrics and a course in mathematics for economics. As described below, all other economics graduate programs listed on the memo and our graduate programs adopt this same set of required courses.

The following are the required courses for Ph.D. at UHM Economics. (http://www.economics.hawaii.edu/grad/doctorate.html)

Econ 606 Microeconomic Theory 1

Includes price theory*, economic modeling, cost-benefit analysis.

Econ 607 Macroeconomic Theory 1

Includes cost/benefit analysis

Econ 627 Mathematics for Economics

Includes optimization theory

Econ 608 Microeconomic Theory 2

Includes price theory, cost/benefit analysis, game theory

Econ 609 Macroeconomic Theory 2

Includes cost/benefit analysis

Econ 628 Econometrics 1

Includes economic statistics, econometrics

Econ 629 Econometrics 2

Includes economic statistics, econometrics, economic forecasting and evaluation

(*Price theory is the same as microeconomic theory.)

These courses cover all of the methods and topics discussed in the definition of "Econometrics and Quantitative Economics." The following lists demonstrate that the required coursework for other Economics PhD Programs with the new CIP Code consists of the same courses.

Required courses at Carnegie Mellon University

(https://www.cmu.edu/tepper/programs/phd/program/economics/requirements.html)

Microeconomics Sequence

- Microeconomics I
- Microeconomics II
- Game Theory and Applications*
- Economics of Contracts*

Macroeconomics Sequence

- Macroeconomics I
- o Macroeconomics II
- Dynamic Competitive Analysis*
- Computational Methods for Economics*

Econometrics Sequence

- Econometrics I
- Econometrics II

(Note: Game Theory and Application and Economics of Contracts are covered in our Econ 608. Dynamic Competitive Analysis is covered in Econ 607, 609; Computational Methods for Economics in Econ 627, Econ 628, Econ 629.)

Required courses at Emory University

(http://economics.emory.edu/home/graduate/program-desc/first-year-requirements.html)

- Econ 500: Microeconomic Theory I
- Econ 501: Microeconomic Theory II
- Econ 510: Macroeconomic Theory I
- Econ 511: Macroeconomic Theory II
- Econ 520: Probability Theory and Statistical Inference
- Econ 521: Econometric Methods I
- Econ 526: Quantitative Methods I (waived for students with a strong mathematical background as determined by an evaluation of prior coursework)
- Econ 626: Quantitative Methods II

Required courses at Georgia Tech

(https://econ.gatech.edu/graduate/ds-econ/program-of-study)

Mathematics for Economists: the main goal of this course is to provide students with the necessary quantitative skills to perform well in the subsequent core coursework. The 14 course covers matrix algebra, limits and open sets, implicit functions and their derivatives, quadratic forms and definite matrices, unconstrained and constrained static optimization and dynamic optimization.

Microeconomic Theory I: the students learn the axiomatic theory of consumer behavior, consumer choice, classical demand theory, aggregate demand, choice under uncertainty, producer theory and partial equilibrium analysis.

Microeconomic Theory II: covers topics in externalities and public goods, general equilibrium, economics of information and inter-temporal dynamic analysis.

In addition to Mathematics for Economists, students take three courses in **Quantitative Methods**: a two-course sequence in statistics and econometrics, and a course in empirical research methods.

Econometrics I: a comprehensive introduction to mathematical statistics principles underlying statistical analyses in economics.

Econometrics II: students learn linear and nonlinear regression analyses, hypothesis testing, ordinary and generalized least squares, instrumental variables estimation, the generalized method of moments, the method of maximum likelihood, methods for stationary time series, unit roots and cointegration, and specification testing.

Empirical Research Methods: a course that complements the two-course sequence in statistics and econometrics by providing students with up-to-date theory in panel data modeling and analysis.

Required courses at Massachusetts Institute of Technology

(https://economics.mit.edu/graduate/ph.d./graduate)

Fall Semester

14.121/14.122 (Micro Theory I/II)

14.451/14.452 (Macro Theory I/II)

14.381 (Probability and Statistics)

Field Course (major or minor)

Spring Semester

14.123/14.124 (Micro Theory III/IV)

14.453/14.454 (Macro Theory III/IV)

14.382 (Econometrics)

Field Course (major or minor)

Required courses at UC Davis Department of Agricultural and Resource Economics (https://are.ucdavis.edu/graduate/current-students/handbook/phd/)

Microeconomic Theory:

- 1. ARE/ECN 200A Microeconomic Theory
- 2. ARE/ECN 200B Microeconomic Theory
- 3. ARE/ECN 200C Microeconomic Theory

Econometric Methods:

- 1. ARE/ECN 239 Econometric Foundations
- 2. ARE/ECN 240A Econometric Methods
- 3. ARE/ECN 240B Econometric Methods

Applied Microeconomic Theory:

- 1. ARE 202A Introduction to Applied Research Methods
- 2. ARE 202B Applied Microeconomics: Welfare Analysis and Imperfect Competition
- 3. ARE 202C Research Design for Applied Microeconomics

(Note: UC Davis adopts a quarter system and hence the number of courses is larger than at UHM.)

Required courses at UC Berkley

(https://www.econ.berkeley.edu/grad/program/year-1)

FALL

- Econ 201A Economic Theory 4 units
- Econ 202A Macroeconomic Theory 4 units
- Econ 204 Mathematical Tools for Economics 3 units
- Econ 240A Econometrics 5 units
- Econ 295 Survey Seminar Survey of Research in Economics 1 unit

SPRING

- Econ 201B Economic Theory 4 units
- Econ 202B Macroeconomic Theory 4 units
- Econ 210A Introduction to Economic History 3 units
- Econ 240B Econometrics 5 units
- Econ 295 Survey Seminar Survey of Research in Economics 1 unit

As it is clear from these examples, the coursework is fairly uniform across many competitive economics graduate programs in the United States.

The above discussion focused on the PhD Program description. The MA Program content is also similar among our Program and the peer programs: they tend to include a lower number of required courses.

2. List of NSF approved STEM Fields

National Science Foundation publishes a list of approved STEM fields (https://www.btaa.org/docs/default-source/diversity/nsf-approved-fields-of-study.pdf?sfvrsn=1bc446f3 2). "Economics (Except Business Administration)" is on the list. UHM Economics graduate program is not a business administration discipline.

3. On the mathematical rigor of the economics graduate coursework

Modern economics as a profession requires a high level of mastery in mathematics. Econ 627 Mathematics for Economics covers basic real analysis, multivariate calculus, linear algebra, various mathematical optimization methods, and some exposure to dynamic optimization. Both microeconomic and macroeconomic theory sequence rely on rigorous mathematical analysis. For example, our microeconomic theory sequence uses Mas-Colell, A., Whinston, M. D., & Green, J. R. (1995). *Microeconomic Theory* Oxford University Press as the main textbook. This textbook is adopted in the majority of the top-level economics graduate programs. With this textbook, our microeconomic theory sequence trains students to apply high-level mathematical methods for economic analysis. An excerpt from the textbook is available at the following link.

https://drive.google.com/a/hawaii.edu/file/d/1MA766nkhDmBGxHp6h1Q2p2WsPllMRTlj/view?usp=drive_web

As for the macroeconomic theory sequence, it trains the students with modern macroeconomic theory that applies dynamic programming and numerical methods. The theory learned in the courses forms the foundation for the students' applied economic research. Our Econometrics

courses clearly deals with econometrics, which is a combination of mathematics, statistics, and economic theory and is an indispensable tool for quantitative and data analysis by economics scholars.

4. Sample syllabi and exams of the required economics graduate courses at UHM

We share a sample of syllabi and exams of the required graduate courses in the following folder:

https://www.dropbox.com/sh/ifkmv4u2jnmf7ly/AAA9njGIEPUzt9uawqAewyxha?dl=0

5. Sample recent research papers by Economics graduate students

In the same DropBox folder, we share two recent writing samples of our graduate students. They demonstrate that the students apply the theory, quantitative and econometric methods learned through the course work for their research. All PhD students conduct dissertation research that apply economic theory, quantitative methods including econometrics, or both. All MA students conduct Plan-B capstone projects that involve applications of quantitative methods or econometrics.

6. The names of the economics graduate programs in other U.S. universities that have adopted the new CIP Code (or "STEM certified") without changing the program's name

The following examples illustrate that the CIP code change did not involve a change in the program's names in most precedents. Keeping "Economics" in the program name is not only customary but is crucial for recruiting competitive students widely.

- (1) Yale University's Economics Program provided by the Department of Economics https://economics.yale.edu/does-economics-major-have-stem-designation
- (2) Columbia University's Economics Program provided by the Department of Economics https://econ.columbia.edu/stem-classification/
- (3) Louisiana State University's PhD Program in Economics and MS in Financial Economics, provided by the Department of Economics

 https://www.lsu.edu/business/economics/index.php
- (4) Miami University's "Master of Economics" Program (they have no PhD program in economics) http://miamioh.edu/fsb/academics/economics/academics/graduate-program/index.html
- (5) Northeastern University's PhD Program in Applied Economics

https://cssh.northeastern.edu/economics/graduate/

- (6) Southern Illinois University's MS and PhD in Economics https://cola.siu.edu/economics/graduate/
- (7) University of Missouri-St. Louis offers MA in Economics http://www.umsl.edu/~econ/Programs/index.html
- (8) Virgina Tech's PhD Program in Economics https://econ.vt.edu/graduate.html

lassified major/

- (9) UCLA's PhD Program in Economics https://economics.ucla.edu/2019/11/04/ucla-economics-programs-now-classified-as-stem/
- (10) MIT's PhD Program in Economics https://economics.ucla.edu/2019/11/04/ucla-economics-programs-now-classified-as-stem/
- (11) The following article lists 37 Programs, which are largely "Economics" Programs (some of them are listed above under 1-10) https://www.reddit.com/r/ApplyingToCollege/comments/bzojz7/schools where econ is a stem c



Department of Economics

Timothy J. Halliday Professor and Chair halliday@hawaii.edu Phone: 808-956-8615

May 9, 2020

MEMORANDUM

TO: David Lassner

President

VIA: Michael Bruno

Provost

VIA:

Laura Lyons Jam F. Kgm
Interim Associate Vice Chancellor for Academic Affairs

Michael Bruno

VIA:

Denise Konan

Dean, College of Social Sciences

Timothy Halliday_ ~ / / / FROM:

Chair and Professor, Department of Economics

APPROVAL OF NEW CIP CODE FOR MA AND PHD IN ECONOMICS SUBJECT:

SPECIFIC ACTION REQUESTED:

It is requested that the President approve a change in the Classification of Instructional Programs (CIP) code for the Economics MA and PhD Programs from 45.0606 ("Economics, General") to 45.0603 ("Econometrics and Quantitative Economics").

RECOMMENDED EFFECTIVE DATE:

Upon approval.

ADDITIONAL COST:

None

PURPOSE:

We request the change in the CIP code because the new code better represents our Graduate Programs which are heavily quantitative. The requested CIP code change, which classifies our Programs as STEM, will also benefit our graduates. In particular, international students will have more flexibility in their job placement. This will help us recruit more capable students.

BACKGROUND:

The main justification is summarized as the following.

- Since the U.S. Department of Homeland Security classified "Econometrics and Quantitative Economics" as a STEM program in 2012, many U.S. universities have reclassified their economics programs as STEM (without changing the name of the program). These universities include both the top universities and UHM peer institutions.
- These reclassifications did not accompany changes in the program and the program title. Standard economics curriculum, including what UHM Economics offers, naturally fits the definition of "Econometrics and Quantitative Economics."
- Changing the Economics Graduate Programs' CIP code to "Econometrics and Quantitative Economics" helps us recruit students, including international students who would benefit from the CIP code change.

Here we provide the details. In 2012, the U.S. Department of Homeland Security announced an expanded list of STEM degree programs. With this expansion, part of economics was classified as a STEM field (https://www.ice.gov/sites/default/files/documents/Document/2014/stem-list.pdf). Since the expansion, many U.S. universities have reclassified their economics programs as belonging to a STEM discipline by changing the CIP code. A non-exhaustive list includes the economics programs in the following institutions.

Carnegie Mellon
Emory University
Georgia Tech
Massachusetts Institute of Technology
Pomona College
UC Davis Department of Agricultural and Resource Economics
UC Berkeley
Williams College
Yale University

In all cases, their program title (or the name of the department) did not change. They are "Economics" programs offered by "Department of Economics."

According to U.S. Department of Education National Center for Education Statistics, the following is the definition of classification 45.0603 "Econometrics and Quantitative Economics."

A program that focuses on the systematic study of mathematical and statistical analysis of economic phenomena and problems. Includes instruction in economic statistics, optimization theory, cost/benefit analysis, price theory, economic modeling, and economic forecasting and evaluation.

The definition of classification 45.0601 "Economics, General" is the following.

A general program that focuses on the systematic study of the production, conservation and allocation of resources in conditions of scarcity, together with the organizational frameworks related to these processes. Includes instruction in economic theory, micro- and macroeconomics,

comparative economic systems, money and banking systems, international economics, quantitative analytical methods, and applications to specific industries and public policy issues. Virtually all U.S. graduate programs in economics, including UHM's, require coursework on mathematical and statistical analysis of economic phenomena. At UHM Economics, the first-year MA and PhD students must take courses in microeconomic theory, macroeconomic theory, mathematics for economics, and econometrics courses, which together constitute a systematic study of mathematical and statistical methods and analysis, covering all of the topics listed under code 45.0603. Therefore, the training that we provide through our core courses makes our program qualify as STEM. With the recent graduate program modification, which was just approved by VCAA, the Economics Graduate Programs offer additional courses focusing on mathematical and statistical treatment of economic analysis: "Macroeconomic Theory III" and "Econometrics III," in addition to the existing courses (Microeconomic Theory I, II, III, Macroeconomic Theory I, II, and Econometrics I, II). Just like many other U.S. universities, we argue that UHM could change the CIP code for the economics program without changing the curriculum or the program title.

We expect that economics graduate students with the STEM recognition will have some advantage in the job market. In particular, our international students can obtain an extra two years of practical training in the United States. Enhancing our international students' job opportunities is critical to our Department because the Economics Program has the largest number of international students on campus (graduate and undergrad combined, UHM Annual Report on International Education 2018-19). As our peer institutions are increasingly shifting to the new CIP code, changing our graduate programs' CIP code would be critical for both the graduates in the job market and for recruiting. Following the national trend, we argue that it is best to keep the Department's and the Programs' name as "Economics."

We attach an article in <u>Inside Higher Education (February 19, 2018)</u> that explains the trend of Economics programs adopting the new STEM CIP code.

ACTION RECOMMENDED:

It is recommended that the Classification of Instructional Programs code for the Economics MA and PhD Programs be changed from 45.0606 ("Economics, General") to 45.0603 ("Econometrics and Quantitative Economics").

Attachment:	"Is ECON STEM?"	Inside Higher Education	, February 1	19, 2018	3

APPROVED/DISAPPROVED:

David Lassner President Date



Published on *Inside Higher Ed*(https://www.insidehighered.com)

Home > Economics departments reclassify their programs as STEM to attract and help international students

Economics departments reclassify their programs as STEM to attract and help international students

Submitted by Elizabeth Redden on February 19, 2018 - 3:00am

Some economics departments are changing the formal classification of their programs so that international students have more opportunities to work in the U.S. after they graduate.

It may seem like the most bureaucratic of changes, but changing the formal classification -- what's known as the federal CIP code [1] -- for an economics program from the one for "economics, general" to the one for "econometrics and quantitative economics" means that international graduates of those programs can work in the U.S. for two extra years after they graduate while staying on their student visas.

That's because the Department of Homeland Security considers econometrics and quantitative economics -- but not general economics -- to be a STEM field. International graduates of designated STEM programs are eligible for what's known as the STEM OPT extension, which enables them to work in their field for a total of three years in the

U.S. while staying on their universities' sponsorship. By contrast, students with degrees in non-STEM fields are only eligible for one year of OPT [2], which stands for optional practical training.

Those involved in recruiting top international students who are considering options in the United States and other countries have long complained that the limited options for postgraduation work in the U.S. place American colleges and universities at a disadvantage. The extra two years that students in eligible STEM programs can spend on spend on OPT arguably make them more hirable, and give them additional chances to try their luck in the annual lottery for the limited number of H-1B skilled worker visas.

Michael Kuehlwein, chair of the economics department and the George E. and Nancy O. Moss Professor of Economics at Pomona College, said he was approached by an international student who asked if the department's economics major could be reclassified as a STEM field. That student had a friend at Williams College, which had already made such a change.

"We do have a fair number of international students who major in economics, and I have heard that only being able to spend one year in this country after you graduate is a real impediment when you're on the job market," Kuehlwein said. "I've actually heard that our majors they have gone on, have gotten a job in consulting or whatnot, and they literally have to leave the country after a year. So I looked at the criteria for this econometrics and quantitative economics major, and it just looked like what we do here already; it seemed like a very close fit. It seemed appropriate to say that this is what we do, and if our international students can benefit, that would be fantastic."

The definition for "economics, general [3]" on the U.S. Department of Education website is for "a general program that focuses on the systematic study of the production, conservation and allocation of resources in conditions of scarcity, together with the organizational frameworks related to these processes. Includes instruction in economic theory, micro- and macroeconomics, comparative economic systems, money and

banking systems, international economics, quantitative analytical methods, and applications to specific industries and public policy issues."

By contrast, the definition for "econometrics and quantitative econometrics [4]" is more specialized and mathematically focused: "a program that focuses on the systematic study of mathematical and statistical analysis of economic phenomena and problems. Includes instruction in economic statistics, optimization theory, cost/benefit analysis, price theory, economic modeling, and economic forecasting and evaluation."

"Pomona's program includes instruction in all of those things," Kuehlwein said, ticking through the items on the list. "It just seemed clear that we satisfied the criteria."

Other departments that have made the change include the economics department at Yale University, which announced in January that its undergraduate and graduate economics programs now carry the CIP code for econometrics and quantitative economics. "The new classification more closely corresponds to the quantitative and analytic nature of our programs," says <u>a statement</u> [5] on the Yale economics department website.

The Massachusetts Institute of Technology also made this change in 2016. "At economics at MIT we are the most technical economics program in the United States, probably in the world," said David Autor, the associate head of the department and Ford Professor of Economics. Autor said in the past there was never much of a reason to care about the economics program's CIP code, which was used primarily for the purpose of submitting data to the federal government. But after the Homeland Security Department designated econometrics as a STEM field -- <u>a move it made in 2012</u> [6] -- there were new stakes for students.

"The question we had to ask is, does this qualify under the econometrics designation? It's not that we would say our program is more econometrics than anything else, but does it meet that criteria, because the stakes were high," Autor said. He said the answer is yes.

"We think our students are fully qualified under that heading."

Universities such as Yale and MIT have no shortage of international applicants, but a STEM designation for an economics program unquestionably offers a recruiting edge. In a proposal to change the CIP code for its graduate economics program from the one for economics to the one for econometrics in 2016, the economics department at the University of Wisconsin at Madison cited competition from other programs that had the STEM designation. "This year, we have already had 6 instances of applicants to our terminal MS program declining our offer and accepting the offers [of] other terminal MS programs and the reason given is that the other programs offer a STEM designation," says the proposal [7] considered by the University Academic Planning Council in 2016.

More recently, Madison's agricultural and applied economics department announced in January that it had received approval to change the CIP code for all of its graduate degrees from the one for "agricultural economics."

"When we looked at the description, we pretty much did everything in the description of this new CIP designation, and the old one didn't seem to fit us all that well," said Jeremy Foltz, the department chair. "Since we're brand-new at this, we're not sure all of the things this will mean. We know that there are advantages in terms of the optional practical training program that our students will get an extra two years, so we think this will help make our program more attractive to foreign students."

It's not just economics. Heidi Pickett, the director of MIT's master of finance program, said the program changed the CIP code from the one for "business/commerce, general" (non-STEM) to the one for "financial mathematics" (STEM) in 2016 -- a change that she said reflects the evolution of the curriculum to include more financial mathematics and financial engineering course work over the years. Pickett said she's fielded inquiries from other master of finance programs interested in making the same change.

"We're MIT, so we have such a strong brand that we're going to get way more applicants than we could possibly seek," said Pickett. Still, she continued, "the finance space, particularly the master of finance space, is becoming very crowded here in the

U.S., as well as outside the U.S. Not all programs are going to be able to survive in the long run. Having the brand that we have but also the STEM designation, I think that will help us in the end to maintain our position -- and I think that will be a challenge for some of the second- and lower-tier programs."

The Department of Homeland Security's Student and Exchange Visitor Program did not comment directly on the choice of some universities to reclassify their programs. "If the Department of Education recognizes a degree program as a STEM degree and that degree falls within the two-digit codes designated by DHS as a qualifying degree, then that degree would qualify for the STEM OPT extension," a spokeswoman said.

Peter Rousseau, the secretary-treasurer of the American Economic Association, said the association has no position on universities reclassifying their programs. "The reclassification question is something determined by universities, and they may have several reasons for doing so, including the nature of their programs falling increasingly into the STEM domain, making the reclassification the intellectually appropriate one," he said.

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