

WORCESTER POLYTECHNIC INSTITUTE

December 19, 2022

To: The WPI Faculty
From: Mark Richman
Secretary of the Faculty

The fourth Faculty meeting of the 2022-2023 academic year will be held on **Monday, December 19, 2022 at 10:00am in OH 107 and by Zoom at: <https://wpi.zoom.us/j/93371991036>** . Refreshments will be available in OH 107 at 9:45am.

1. Call to Order M. Richman
 - Approval of the agenda
 - Approval of the consent agenda including minutes of the Nov. 10, 2022 meeting
2. Opening Announcements
3. Memorial Resolution: R. Brown
 - In honor of Prof. Tom Gannon (Teaching Professor, ECE)
4. Committee Business:
 - Committee on Academic Operations (CAO) L. Elgert
 - December 2022 Undergraduate Student Graduation List
 - Committee on Graduate Studies and Research (CGSR) D. Medich
 - December 2022 Graduate Student Graduation List
 - Committee on Information Technology Policy (CITP) G. Smith
 - Motion to revise the WPI Security Camera Policy (for discussion, only)
5. Special Reports:
 - Graduate Worker Union: WPI-GWU and You** A. Gandhi
J. Scarponi
P. Van Nostrand
 - Status Report – (for discussion, only) S. Strauss
 - Divesting, Investing, and Transforming for Carbon Neutrality:
Accountability in Energy Systems, Climate Action, and Sustainability at WPI**
6. New Business
7. President’s Report W. Soboyejo
8. Provost’s Report A. Heinricher
9. Closing Announcements
10. Adjournment

TABLE OF CONTENTS
Faculty Meeting Materials, Dec 19, 2022

	<u>Page</u>
1. Faculty Meeting Minutes: Nov. 10, 2022 Meeting	3
2. Committee Business	
CAO Motion:	
- to approve the December 2022 undergraduate student graduation list	8
CGSR Motion:	
- to approve the December 2022 graduate student graduation list	11
CITP Motion:	
- to revise the WPI Security Camera Policy	15
3. Special Reports:	
Status Report – (for discussion, only)	
Divesting, Investing, and Transforming for Carbon Neutrality: Accountability in Energy Systems, Climate Action, and Sustainability at WPI	25
4. Appendix: Consent Agenda Motions	30
CAO Motions:	
- to add ECON 3100: Economics of Climate Change	31
- to add ENV 3500: Women and the Environment	32
- to remove the minor in Political Science and the Law from the SSPS offerings	33
- to consolidate the titles of three SSPS Programs into the Program in Technology, Policy, and Sustainability	34
- to establish a Policy Studies major in SSPS	38
- to change ECON 2125 to ECON 3125	40
- to change ECON 2117 to ECON 3117	41
- to change GOV 2312: International Environmental Policy to GOV 3312	42
- to add a Complex Systems Thinking concentration to the Policy Studies major	43
- to add an Economics concentration to the SSPS Policy Studies major	45
- to add a Development and the Environment concentration to the SSPS Policy Studies major	47
- to add a Science Technology Policy concentration to the Policy Studies major	49
- to remove ME 4810: Automotive Materials and Process Design	51
- to remove ME 4815: Industrial Robotics	52
- to add ME 4323: Fundamentals of Drivetrain Systems	53
- to add ME 4324: Integrated Design of Mechanical Systems	54
- to add EN 1259: Introduction to Contemporary Chicana/o Literature	55
- to remove CE 4020: Resilient Infrastructure for a Changing Climate	57
- to modify distribution requirements for the Biomedical Engineering major	58

WORCESTER POLYTECHNIC INSTITUTE

Faculty Meeting Minutes

November 10, 2022

Summary:

1. Call to Order
2. Scheduling Faculty Meetings
3. Consent Agenda
4. Opening Announcements
5. Motion to approve the minutes from September 1, 2022
6. Committee Business: CTAF/COG; CGSR
7. Special Report: Equity in our Associate-to-Full Promotion Systems
8. New Business
9. Closing Announcements
10. Adjournment

Detail:

1. Call to Order

The third Faculty Meeting of the 2022-2023 academic year was called to order at 3:15pm in Olin Hall 107 by **Prof. Richman** (AE). Prof. Richman reminded all those in attendance that the meeting was being recorded for the purpose of taking accurate minutes. The meeting agenda was approved as distributed.

2. Scheduling of Faculty Meetings

Prof. Richman thanked all the many faculty members who provided their views both publicly and privately on the appropriate mode of our faculty meeting. He was gratified by the response, which demonstrated again a strong interest and appreciation for the importance of our faculty governance processes. It is an issue that we can resolve among ourselves, and we have done so by experimenting with a hybrid faculty meeting format.

The deeper question is how to remove major obstacles to attending faculty meetings. These obstacles include family responsibilities during the 3-5pm time slot, as well as teaching responsibilities during any time slot. The goal should be to free time in our academic schedule and our academic calendar for “professional activities” that include attending faculty meetings. Such an effort is an institutional challenge that will require a collaboration between the administration, the faculty, and the registrar, among others. (See **Addendum #1** on file with these minutes.)

3. Consent Agenda

Prof. Richman explained that in response to concerns raised, the minutes from the Sept. 1 faculty meeting were removed from the Oct 6 consent agenda. In the intervening month, Prof. Hanlan (HUA), in his role as Parliamentarian, provided his general guidance on what is and is not appropriate to include in our minutes, and changes have been made to the Sept. 1 minutes consistent with his guidance.

Prof. Richman moved that the Sept 1st and Oct 6 meeting minutes be approved as distributed. Based on a request from **Dean McNeil** (ECE), the Sept 1 meeting minutes were removed from the consent agenda for full consideration. Based on a request from **Dean Wyglinski** (ECE), the CGSR motion to add a B.S./M.S. Program in Learning Sciences & Technologies was also removed for full consideration. The remainder of the consent agenda, including the minutes from Oct. 6, were approved as distributed.

4. Motion to approve the Sept. 1 Meeting minutes:

Dean McNeil (ECE) moved to add to the minutes the statement that: “Based on the content of an email to the faculty from CFO Horan, the Secretary of the Faculty apparently made no attempt to ascertain the facts about WPI’s handling on the sale of the Provost’s house or refer the matter to the appropriate governance committee.”

The amendment was ruled inconsistent with the Parliamentarian’s guidance that proper minutes should not refer to actions not undertaken or not addressed at the meeting. Prof. Hanlan explained that the minutes of the Sept. 1

meeting had been removed from the Oct. 6 meeting and revised in response to concerns raised while also adhering to the Parliamentarian's guidance. With one minor unrelated correction suggested by **Prof. Eggelston** (CEAE), **the minutes of the September 1st meeting were approved.**

5. Opening Announcements

WPI Sexual Misconduct Policies: Brief Update:

Prof. Albano (CEAE) reported that, in response to changes in the Title IX regulations introduced by the Trump administration, we have in place an interim policy not yet approved by the faculty that is different than the sexual misconduct policy in the current Faculty Handbook that was approved by the faculty in 2018. He reported that COG is working to understand the differences between the policies with the goal of presenting a policy to the faculty in that we all understand.

WPI AAUP Chapter: Brief Update:

Prof. Sanbonmatsu (HUA) reported that there had been a Q&A with the Graduate Workers' Union and there will be another event on December 5th on the corporatization of the university, and how neoliberalism has affected education nationally and at WPI. He also indicated that AAUP is creating a Faculty Support Committee, which would serve as an outlet to which faculty members could turn for help in responding to bullying behavior or intimidation. The committee would at least serve as a stopgap measure until Faculty Governance can address the issue of formally strengthening the faculty's grievance processes as reflected in the Faculty Handbook. He announced that the next AAUP meeting will be on November 17th.

4. Committee Business

Committee on Tenure and Academic Freedom (CTAF) and the Committee on Governance (COG):

Prof. Claypool (IMGD) moved, on behalf of the Committee on Tenure and Academic Freedom and the Committee on Governance that the number of members on the Committee on Tenure and Academic Freedom (CTAF) be increased from six to nine, and that the description of CTAF in the Faculty Handbook (PART ONE, Bylaw One, Subsection V) and two other related parts of the Faculty Handbook (PART ONE, Appendix A, Section D; and PART ONE, Appendix A, Section B, Subsection 2) be modified accordingly and updated, as described in the meeting materials distributed. (See **Addendum #2** on file with these minutes.)

Prof. Claypool explained that increasing the CTAF membership from six to nine will not change the make-up of each eight-member Joint Tenure Committee (JTC). Instead, it will increase the pool of CTAF members who may serve as the five CTAF members on each JTC. This expansion in turn will maintain a reasonable workload for each CTAF member even as the number of tenure cases increases as anticipated over the next few years. The expansion would be implemented by electing five new CTAF members whose terms would begin in AY 2023-24: three members for four-year terms; one member for a two-year term; and one member for a one-year term. The motion also clarifies the following: how CTAF chooses its Chair and Secretary; that CTAF is responsible for tenure recommendations for assistant, associate, and full Professors of Teaching; and when and if any positive tenure recommendation includes a recommendation for promotion, as well.

Prof. Sanbonmatsu (HUA) complimented Prof. Claypool on the use of his light board in making his presentation.

Prof. Alatalo (BME) corrected a typo in the motion.

Prof. Clark (HUA) thanked Prof. Claypool for all his effort in seeing this motion through.

The motion passed.

Committee on Graduate Studies and Research (CGSR):

Prof. Medich (PH), on behalf of the Committee on Graduate Studies and Research, moved that a B.S./M.S. Program in Learning Sciences & Technologies (LS&T) be added, as described in the meeting materials.

Prof. Wyglinski (ECE) asked if double counting MQP credit for M.S. thesis credit, as is proposed in the LS&T B.S./M.S. program is standard practice across campus and/or is allowed within any other B.S./M.S. programs. **Prof. Medich** (PH) deferred to **Registrar Miles**, who indicated that such double counting is included in the B.S./M.S. programs in both RBE and Ch.E.

Prof. Billiar (BME) asked if there were a university rule on the maximum number of credits that may be double counted in any B.S./M.S. program. **Registrar Miles** explained that the university rule allows up to 40 percent of M.S. credits to be double counted toward the B.S. degree, but each department and program can limit it further.

Prof. Gericke (Ch.E.) was against the motion with the MQP credits counted toward M.S. thesis credits because he thought that master's-level thesis research should be at a higher level than MQP level undergraduate work. **Prof. Medich** appreciated the point, but he explained that the university's policy allows such double counting and it would be unfair to allow it in some cases but not in others. The intent is that MQP research could be continued in-more depth as part of a master's thesis.

Prof. Shue (CS) pointed out that the M.S. program in LS&T requires 33 credits, so even if 3 MQP credits were double counted, the result is no less rigorous than many of our master's programs that required only 30 credits.

Prof. Ruiz (CS) was in favor of the motion. In her view, such double counting in RBE has been successful. Moreover, the criteria in the proposal for double counting requires that the MQP be done at an advanced level, that the thesis research be a continuation of the MQP, and that the double counting be approved by the thesis advisor.

Prof. Gericke thought that the policy allowing double counting of MQP credit for MS thesis credit was problematic, and that problematic policies should not be applied when formulating new programs. In Prof. Gericke's view, the university's policy should be to either allow or disallow such double counting in all B.S./M.S. programs. He **moved** that the proposal be amended by eliminating the possibility of double counting MQP credits toward the M.S. degree. The motion was **seconded**.

Prof. Smith (IMGD) was against the amendment. She thought the fact that there is precedent in other programs for such double counting is an important reason to allow it here. Specifically in this case, the double counted MQP credit would serve as the project-building work at the thesis stage, and it would serve appropriately as one third of the nine credits required for the completed thesis. Prof. Smith also thought that it was appropriate for each program and department to decide on a case-by-case basis whether such double counting were suitable to their purposes.

Prof. Heineman (CS) was against the amendment. It is difficult to involve our B.S./M.S. students in thesis research, and removing the double counting provision would add another obstacle.

Prof. Ruiz (CS) was against the amendment and thought that each department or program should decide on a case-by-case basis whether such double counting were suitable to their purposes.

Prof. Billiar (BME) also spoke against the motion; the LS&T M.S. program requires 33 credits rather than 30; and the program requires 9 thesis credits rather than 6. These requirements are stricter than most other programs and can absorb three credits that are double counted.

The motion to amend did not pass.

Prof. Alatalo (BME) asked how MQP work done in teams could be credited toward single students at the M.S. thesis level. **Prof. Medich** explained that the thesis advisor, who would be aware of the student's intention to continue the work at the M.S. level, would have discretion to make that judgment.

Prof. Shaw (SSPS) explained that in her experience, the MQP advisor always serves as the thesis advisor and can make that judgment. **Prof. McNeil** thought that the requirement that the thesis research must be a continuation of the MQP ensured quality control with respect to this issue.

This motion passed.

5. Special Reports

Equity in our Associate-to-Full promotion systems:

Prof. Demetry (MME) and **Prof. Roberts** (CHE) presented a progress report on equity in our Associate-to-Full promotion systems, an effort underway at WPI since 2014. Profs. Demetry and Roberts represent a WPI research team supported since 2018 with an NSF ADVANCE grant to implement a culture change supporting equity in faculty promotions. Profs. Demetry and Roberts acknowledged other participants in the project, including their ADVANCE

research team, members of the Committee on Appointments and Promotions (COAP), Profs. Billiar (BME), Petkie (PH), and Strong (Business), and senior leadership. (See **Addendum #3** on file with these minutes.)

Prof. Demetry presented a history of faculty actions since 2014 related to promotion from associate to full professor; outlined the goals and activities of the ADVANCE grant; described new resources to clarify promotion and professional development of associate professors; reviewed outcomes –what has changed, what has not changed; and described promising practices and insights.

In 2014, WPI participated for the first time in the COACHE Faculty Status Job Satisfaction survey. In that first-year, survey results revealed widespread dissatisfaction with promotion among associate-rank faculty. Women were especially dissatisfied with the lack of clarity and lack of mentoring for promotion. In response, COAP and COG created a task force, which interviewed associate professors and revealed dissatisfaction with clarity, mentoring, and the values underpinning WPI’s promotion system. These findings ultimately resulted in changes to our promotion process and criteria.

The ADVANCE project aims to create a shared understanding of promotional policies and processes; establish a mentoring and professional development system for mid-career faculty; mitigate bias in the promotion process; and redesign the annual review conversations with department heads. **Prof. Demetry** described the resources her team has developed from the grant activities, including some that have been adopted by COAP and others being reviewed in faculty governance committees. These resources are available on the NSF-ADVANCE Program Canvas site.

A motion to extend the meeting was approved.

Prof. Roberts summarized her team’s improvements to faculty mentoring, including the introduction of a Professional Development Plan and resources to improve the annual review meeting between with the Department Head. She reported significant increases in faculty satisfaction with the annual review since introducing these resources. She referred to new tools and practices, now being used by COAP, to mitigate bias in promotion reviews.

Prof. Demetry summarized outcomes, including changes in faculty satisfaction with promotion, increases in the success rates of promotion, and changes in the kinds of scholarship faculty pursue. She shared her thoughts about future work that should be undertaken to continue the work of equity.

Dean McNeill asked how this work would be institutionalized. **Prof. Demetry** indicated that there have been discussions about having the Morgan Center for Teaching and Learning incorporate faculty development into its responsibilities.

Prof. El-Korchi (CEAE) asked what kind of cultural changes would help us continue to improve equity. **Prof. Demetry** noted the importance both of continuing to ask questions about equity and to increase our capacity for equitable implementation of new policies.

Prof. Hansen (HUA) thanked the ADVANCE team and suggested that the work being presented should also be applied to search committees and other processes beyond promotion.

Prof. Gericke hoped that increased resources would flow to the Morgan Center if its role is expanded to include the functions described here. He asked whether the backlog of women stuck at associate professor was beginning to clear. **Prof. Demetry** showed data that the new promotion policy opened paths for people of all genders who had spent more than 15 years at the associate rank.

Provost Heinricher emphasized that this work originated because of the institution’s willingness to participate in high quality, externally validated assessment of ourselves.

Dean McNeill thanked all involved and noted that the new promotion criteria allow him to do better department head searches because, based on an ADVANCE team recommendation he asks candidates about their experience with bias and their opinion about WPI’s promotion criteria. He observed that bringing attention to our promotion criteria sends a powerful message.

6. Closing Announcements

Prof. Richman announced that the scheduled report from the Graduate Workers Union would be postponed until next month's meeting for lack of time. He noted that President Soboyejo is away and that Provost Heinricher has offered to hold his remarks until next month.

7. Adjournment

The meeting was adjourned at 5:25 pm by **Prof. Richman**.

Respectfully submitted,

Mark Richman
Secretary of the Faculty

Addenda on file with these minutes:

Addendum #1 - SOF Report - Scheduling of Faculty Meetings - Minutes Nov 10, 2022

Addendum #2 - CTAF-COG Motion to Enlarge CTAF - Minutes Nov 10, 2022

Addendum #3 - ADVANCE Report on Equity in our Associate-to-Full promotion systems - Minutes Nov 10, 2022

Date: December 19, 2022

To: WPI Faculty

From: Committee on Academic Operations (Prof. Elgert, Chair)

Re: Motion to approve the December 2022 undergraduate student graduation list

Motion: The Office of the Registrar reports that the following candidates have either completed all the requirements for the degree designated in the department or program indicated, or are expected to complete their degree requirements before December 30, 2022. They therefore are or will be eligible to receive that degree, and on behalf of the Committee on Academic Operations, I move – pending final verification by the Registrar that all those on the list have in fact completed their degree requirements – that they be approved for December 30, 2022 graduation.

Bachelor of Arts

Interactive Media and Game

Development:

Garet Hayward-Mildish
Julian Herman
Payton Roche

Liberal Arts and Engineering:

Jeremy Trilling
Minor: Robotics Engineering

Bachelor of Science

Actuarial Mathematics:

Ethan Graham
Lauryn Hubbard
Kevin McGonigle
Minor: Data Science
Eric Murdza

Aerospace Engineering:

Nicholas Orlovsky
Minor: Mechanical Engineering
Rishi Patil
Double Major
Christopher Ritter
Maria Wojciechowski

Architectural Engineering:

Adam Dincher
Karris Krueger
James Scalise

Biology and Biotechnology:

Megan Cyr
Hannah Dobson
Marissa Lima
Minor: Computer Science

Biomedical Engineering:

Michelle Bleau
Brendan Corcoran
Javier Sibel
Catherine Williams

Business:

Christopher Francis
General Business Concentration

Chemical Engineering:

~~Alexander Alonzo~~
~~Minor: Materials~~
~~Minor: Chemistry~~
Jolina Alonzo

Civil Engineering:

Mitchell Decelles
Lillian Patten
Ritesh Prasannakumar
Tarang Shah
Double Major

Computer Science:

Alex Bolduc
 Jack Campanale
 Minor: Interactive Media and Game
 Development
 Charlotte Clark
 Brad Cosma
 Taylor Cox
 N'yoma Diamond
Double Major
 Eren Eroglu
 Lauren Fleming
 Minor: Bioinformatics and
 Computational Biology
 Liliana Foucault
 Lillian Garfinkel
 Adam Grabowski
 Minor: Electrical and Computer
 Engineering
 John Higgins
 Zachary Hilman
 Cyber Security Concentration
 Charles Kittler
Double Major
 Frank McShan
 Minor: Chinese Studies
 Jasper Meggitt
 Xuan Nguyen
 Yash Patel
 Benjamin Peters
~~Manh Nhu Pham~~
 Trang Pham
Double Major
 Zachary Porter
 Minor: Mathematics
~~Liam Rathke~~
 Arthur Robinson
 Orest Ropi
 Renee Sawka
 Minor: Financial Technology
 Qingbei Shang
Double Major
 Minor: Financial Technology
 Maxine Shi
 Patrick Spillane
 Thomas Varney

~~Vivek Wong~~
 Jillian Wright
 Guang Yang

Data Science:

N'yoma Diamond
Double Major
 Qingbei Shang
Double Major

Electrical and Computer Engineering:

Noah Page
 Minor: Business
 Liam Stearns

Humanities and Arts:

~~Tarang Shah~~
~~—Environmental Studies Concentration~~
~~—Double Major~~

Industrial Engineering:

Alejandro Gerov Armas

Mathematical Sciences:

Clarisse Allen
 Jackson Sypek
 Minor: Data Science

Mechanical Engineering:

Devan Blechinger-Slocum
 Robotics Concentration
 Bronwen Chilton
 Brian Fay
Double Major
 Dylan Flegel
 Ferris Florman
 Ryan Hawkins
 Minor: Robotics Engineering
 Elliot Irving
 Hrudhai Kandlagunta
Double Major
 Charles Manger

Mechanical Engineering cont.:

Nathan Ng
Minor: Music
Nicholas Panzardi
Ayna Ramseur-Moore
Casey Shane
Mason Vega
Matthew Wong
Joshua Woodruff

Physics:

~~Alexandra De Heer~~
~~Kyle Marquez~~

Psychological Science:

Drew Mulcare
Diversity Science Concentration
Minor: Computer Science

Robotics Engineering:

Jack Bergin
Christian Defranco
Jason Dominguez
Brian Fay
Minor: Computer Science
Double Major
Zachary Jester
Minor: Manufacturing Engineering
Hrudhai Kandlagunta
Double Major
Charles Kittler
Double Major
Samuel Mwangi
Rishi Patil
Double Major
Trang Pham
Double Major
Jieping Zhao

Date: December 19, 2022

To: WPI Faculty

From: Committee on Graduate Studies and Research (Prof. Medich, Chair)

Re: Motion to approve the December 2022 graduate student graduation list

Motion: The Office of the Registrar reports that the following candidates have either completed all the requirements for the degree designated in the department or program indicated, or are expected to complete their degree requirements before December 30, 2022. They therefore are or will be eligible to receive that degree, and on behalf of the Committee on Graduate Studies and Research, I move – pending final verification by the Registrar that all those on the list have in fact completed their degree requirements – that they be approved for December 30, 2022 graduation.

Doctor of Philosophy

Biology and Biotechnology:

Elizabeth Crowley

Bo Yang

Biomedical Engineering:

Mahvash Jebeli

Business Administration:

Samuel Allen

Amy Finn

Computer Science:

Xika Lin

Shengmei Liu

Samuel Ogden

Data Science:

Huimin Ren

~~Huayi Zhang~~

Electrical and Computer Engineering:

Hamza Abujrida

Johnathan Adams

~~Yasmina Benkhoui~~

Mahdi Elhousni

Pantea Kiaei

Jianan Li

Manufacturing Engineering:

Yutao Wang

Materials Science and Engineering:

Hyunsoo Jin

Yangtao Liu

Mathematical Sciences:

Patchara Santawisook

Mechanical Engineering:

Munevver Elif Asar Sarikaya

Jaya Cromwell

Robotics Engineering:

Abudula Aihaitijiang

Lening Li

Master of Business Administration

Jean-Luc Bellefleur

Taylor Briseno

Jillian Clemente

Eric Fung

Cara Goulding

Mitchell Greene

Tyler Kilkenny

Ryan McLaughlin

Nicolette Miranda

Jonathan Morales

Suzanne Opalka

Maria Ortiz Rivera

Meghan Pajonas

Raymond Ranellone

Mircalin Samedy

Nicholas Scrivanich

Michael Toner

Hien Truong

Master of Business Administration cont.

Amit Urs
Joseph Vaglio
Katherine Williamson
Oona Wood
Alan Yim

Master of Engineering

Biomedical Engineering:

Sawyer Fenlon
Edward Hay
Katelyn Mistretta
Olivia Petropulos
Sierra Raskevitz
Emily Sansoucy

Electrical and Computer Engineering:

Bernard Emah

Power Systems Engineering:

Varun Chauhan
Andrew Deen
Joshua Filler
Abdulrahman Kargbo
Moses Okokuro
Matteo Puzella

Master of Mathematics for Educators

Beth Arsenault
Sheila Orlando
Kyle Stinner

Master of Science

Aerospace Engineering:

Antonio Calcagni
Christopher Davenport
Amanda Dings
Phillip Durgin
Cameron Henchy
Harrison Mazur
Yuvraj Pathania
Leah Pinner
Zachary Sotland
Drake Tierney

Applied Mathematics:

Anna Fitzpatrick
Nikolaos Kalampalikis

Applied Statistics:

~~Alexander Clopper~~
Alison Lambert

Biomedical Engineering:

Johanna Enzmann
Mervyn Larrier

Bioscience Management:

Margaret LaRoche

Biotechnology:

Yiannis Dres
Sarah Koob
Preston Lanier
Ryan Sullivan
Rachael Utegg

Business Analytics:

Jianan Jiang

Chemical Engineering:

Kavim Bhatnagar
Gabriela Chong
Marina Petrillo
Bioengineering Concentration
Margaret Russell
Jared Santerre

Chemistry:

Elina Barrows
Aubrey Graham
Nathan Ouellet

Civil Engineering:

Shuai Wang

Computer Science:

~~Justin Ameer~~
Nicole Conill
Computer Security Concentration

Computer Science cont.:

Mason DiCicco
Jonathan Duran
Christopher Guerrette
Nikhil Gangadhar Gunale
David Kim
Vinit Kothari
Joshua McKeen
Shreya Milind Mhalgi
Tejbir Singh
Yichi Xu
Yan Zhang

Construction Project Management:

Clint Fogg

Data Science:

Jeffrey Crosby
Russell Davis
Joseph Georger
Bhavin Vinod Jain
Utsav Nandlal Jain
Nicholas Josselyn
Muralidhar Koripalli
Joshua Levy
Hanmeng Liu
Eric Mariasis
Tess Royds
Janani Sankarasubramanian
Sahil Sawant
Peter Van Nostrand
Eric Vertina
Shanchao Wu

Electrical and Computer Engineering:

Julien Ataya
Tyler Beckmann
Joshua Geyster
AbdulHadi Hassan
Brian Mahan
Faith Morgan
Joseph Murphy
Zachary Rattet
~~Yael Rogoszinski~~
Anna Shi

Peter Smith
Gregory Tighe
Tuna Berk Tufan

Environmental Engineering:

Jesse Herman
Kevin Mahoney

Fire Protection Engineering:

Karen Bouchard
Gillian Nadeau
Steven Peterman
Sofia Reyes Castillo
Joshua Thomas
Nadeem Zaid Alkeelani

Information Technology:

Kushal Shah
Sanika Thanekar

Interactive Media and Game Development:

Alexis Boyle
Max Chen
Gaurav Nitin Randive

Management:

Julia Bryant
Sonya DeLorie
Lauryn Hubbard
Andy Tran

Manufacturing Engineering:

Ryan Luisi
Brian Wilkinson

Materials Science and Engineering:

Gehn Ferguson
~~Juan Hinostroza Tamayo~~
Jared Majcher

Mechanical Engineering:

Anthony Arace
Michael Arbore
Siddhant Damle
Rajkumar Dandekar

Mechanical Engineering cont.:

Robert Duff
Claudia Dufour
Brendan Green
Alana Guilbault
Rowan Labaugh
Danielle Lablanc
Cam Tu Le
Nathan Ng
Mitch Read
John Riley
Ellen Roberts
Kazimir Sheputa
Harrison Smith
Kaitlin Tripi
Dylan Turetsky
Kelsey Wilkinson
Jason Yanaros

Neuroscience:

Lilly-Beth Linnell

Operations and Supply Chain Analytics:

Nadhykrishna Colocho
Xiangyu Liu
Yaofeng Wang

Physics:

Evan Ruttan

Robotics Engineering:

Arsalan Akhter
Sushmitha Beled
Harshavardhan Dammalapati
Tian Yu Fan
Eleanor Foltan
Alexander Galvan
Kishor Sabarish Ganapathy Subramanian
Aditya Jagani
Sameer Malik
Antoinette Mavrotheris
Jash Mehta
Neet Mehulkumar Mehta
Dante Muzila
Monika Sri Vyshnavi Nagalla
Sumanth Varma Pericherla

Gus Teran
Ankit Vijay Vedak
Nathanael Vickery

**Science and Technology for Innovation
in Global Development:**

Kelley Townley
Kristophe Zephyrin

Systems Engineering:

Alejandro Bertran
Stephanie DeLisi
Elizabeth Inger
Karina Larson
Philip Luetchford
Louis Reid
Christopher Ryan
Sean Ryan-Kut
Alexander Vesey
Joseph Williams

(For discussion, only)

Date: December 19, 2022

To: WPI Faculty

From: Committee on Information Technology Policy (Prof. G. Smith, Chair)

Re: Motion to revise the WPI Security Camera Policy

Motion: The Committee on Information Technology Policy recommends, and I move that the WPI Security Camera Policy (SCP) be revised, as described below.

Description of the Motion:

The proposed revisions constitute the WPI Faculty's first review of the Security Camera Policy since it was established by the Information Security, Risk and Compliance (ISRC) Committee. ISRC published a series of IT policies without formal input or approval from CITP; ISRC has now disbanded, but the policies created by this body remain in place.

(Continued on next page....)

Revised Policy

Security Camera Policy

I. Policy Statement

This policy sets forth guidelines and requirements for the installation and use of Security Cameras for security purposes such as campus safety, emergency response, deterrence and investigation of criminal activity. This policy is intended to establish internal standards and procedures governing the use of Security Cameras at WPI and the data collected by these Cameras. WPI values academic freedom and the freedom of expression, and recognizes that surveillance in any form may have adverse consequences to individuals' sense of freedom, security, and privacy on the campus. This policy is intended to minimize these negative consequences.

II. Scope

This policy applies to all WPI students, faculty and staff. This policy applies to Security Cameras as defined in Section III. This policy does not apply in situations when WPI Security Cameras are used in a manner ordered by law enforcement agencies.

III. Definitions

“Private Areas” refers to areas in which a person has a reasonable expectation of privacy, including, but not limited to offices of individuals, non-common areas of residence halls, residence hall corridors, bathrooms, shower areas, locker and changing rooms and other areas where a reasonable person might engage in personal activities such as changing clothes. Additionally, areas designed for the personal comfort of WPI employees or the safeguarding of their possessions, such as lounges and locker rooms, and areas dedicated to medical, physical, or mental therapy or treatment shall be considered private areas for the purpose of this policy.

“Public Areas” refers to areas available for use by the public, including, but not limited to, campus grounds, parking areas, building exteriors, loading docks, staircases, areas of ingress and egress, lobbies, theaters when not used as classroom space, library entrance and socialization space, dining halls, gymnasiums, recreation areas, and retail establishments.

“Academic Areas” refers to areas such as classrooms, lecture halls, study rooms, labs, library study and research areas, or conference rooms that are used specifically for academic purposes. These are areas of public use where privacy is not expected for personal activity (e.g., changing clothes), but, in the interests of academic freedom and freedom of expression, nor is surveillance expected.

“Security Camera” refers to a video camera and its supporting service, software, and hardware used specifically and solely for security purposes such as campus safety, emergency response, deterrence, and investigation of criminal activity. Each Security Camera will make a video recording of the feed from the camera. With the following two specific exceptions, Security Cameras record video, only, and do not record audio:

1. Two cameras in the WPI Police interview room

2. Mailroom doorbell camera

Security Cameras do not include WPI-operated cameras used for other purposes such as:

- Classroom lecture capture
- Video conferencing
- Video recording of athletic events for post-game reviews
- Video recording of human/animal subjects for research
- Ensuring safe laboratory practices in research laboratories

Security Cameras also exclude body-worn or otherwise portable cameras used during the course of investigations or normal law enforcement functions.

IV. Policy

A. Responsibilities and Authority

The Chief of WPI Police and the Executive Director of IT Infrastructure & Operations are responsible for oversight of installation, maintenance, and utilization of Security Cameras. This responsibility includes:

1. Identifying suitable Security Camera hardware and software;
2. Authorizing the placement of all Security Cameras;
3. Authorizing the purchase of any new Security Cameras;
4. Reviewing existing Security Cameras and installations and identifying modifications required to ensure compliance with this policy; and
5. Ensuring that all personnel involved in the installation, maintenance or monitoring of Security Cameras have reviewed this policy.

B. Security Camera Placement

1. The Chief of WPI Police and Executive Director of IT Infrastructure & Operations shall be responsible for the approval of temporary or permanent Security Camera installations on campus. It is possible for WPI units other than WPI Police to request the installation of Security Cameras for special purposes, e.g., monitoring expensive laboratory equipment to prevent theft. Such requests for Security Camera installation must be submitted to the Chief of WPI Police.
2. Use of Security Cameras shall be limited to Public Areas. Security Cameras shall not be permanently installed in Private Areas, nor in Academic Areas. To comply with a search warrant or other orders from law enforcement agencies, the WPI Chief of Police may authorize temporary installation of Security Cameras in a Private Area or Academic Area. Any such authorization must be for a specific and limited duration of time, and is subject to oversight as discussed in Section IV-G of this policy.
3. Security Cameras shall not be directed at privately-owned residences.
4. Inoperative, placebo, or “dummy” security cameras shall not be installed or utilized.

C. Security Camera Monitoring and Review

1. In general, video data from Security Cameras shall not be monitored in real time, except in the following circumstances:
 - a. Special events, such as commencement.
 - b. Compliance with orders from law enforcement agencies.
2. WPI Police personnel may review Security Camera live feeds and recorded data as needed. All other personnel outside of WPI Police must be expressly authorized to review such data by the Chief of WPI Police incidental viewing of live feeds and recorded data by IT personnel during installation and maintenance is permitted.
3. Video monitoring any individual without probable cause and/or in the absence of a valid search warrant is prohibited and may result in disciplinary action, up to and including termination of employment.
4. WPI shall not use automated facial recognition software on any of its Security Cameras. WPI has no control over third parties (e.g., external law enforcement agencies) who may use automated facial recognition.

D. Notification Requirements

1. On an annual basis, notification shall be sent to the WPI community about the existence of Security Cameras on campus. Such notification shall state that the Security Cameras are not actively monitored.
2. Notification shall be sent to the WPI community whenever real-time monitoring of Security Cameras is performed or planned, such as those discussed in Section IV-C.1(a) of this policy.

E. Use of Recordings

Security Camera recordings, with the approval of the WPI Chief of Police, shall be used for the purposes of enhancing campus safety, emergency response, and deterrence and investigation of criminal activity (including the release of recordings by the Division of Public Safety to external law enforcement agencies).

Security Cameras shall not be utilized to monitor employee performance such as workplace attendance or work quality.

F. Protection and Retention of Security Camera Recordings

Video data recorded by Security Cameras shall be stored on servers accorded appropriate computer security with access by authorized personnel only.

Security Camera recordings will be retained in accordance with the [Records Retention and Destruction Policy](#). This retention period may be extended at the direction of the Office of the General Counsel or the Chief of Police, or as required by law.

Requests for release of recorded material must be approved by the Chief of Police. Requests for release of recorded material set forth in subpoenas or other legal documents compelling disclosure should be submitted to the Office of the General Counsel.

G. Compliance & Oversight

It shall be the responsibility of the Chief of Police to see that records related to the use of Security Cameras and recordings from Security Cameras are sufficient to demonstrate compliance with this policy. WPI's Department of Information Technology, that maintains or supports Security Camera systems must also maintain records and configure systems to ensure compliance with this policy. Before procuring Security Cameras, departments will need to ensure compatibility with the system identified as the campus standard by the Chief of Police.

The Executive Director of IT Infrastructure & Operations, or designee, in conjunction with the Chief of Police, or designee, may review the deployment and utilization of Security Cameras at WPI, whenever and as frequently as they deem necessary.

This policy shall be subject to periodic review by a WPI's Chief of Police.

V. Questions

If you have any questions regarding this policy and its implementation, please contact WPI's Chief of Police and Director of Public Safety, Cheryl Martunas at cam@wpi.edu.

* * *

Policy Sponsor: Chief of Police

Responsible Department: Public Safety

Effective Date (i.e., date of Presidential Approval): [TBD]

Current Policy

Security Camera Policy

1.0 Purpose

This policy sets out the framework within which WPI will use or allow the use of Security Cameras.

The primary purpose of utilizing security cameras in public areas is to deter crime and to assist in enhancing the safety and security of members of the University community and University property. The primary use of security cameras will be to record video images for use by public safety and other University officials charged with investigating alleged violations of law or University policy.

2.0 Applicability

This policy applies to employees and students employed by or enrolled at any WPI location. It also applies to contractors, service providers, clients, customers, and visitors.

The camera system shall be used in a manner consistent with all applicable laws and ordinances and, to the greatest extent possible, maintain individuals' right to privacy. To the extent reasonable and practicable, the University shall place and position cameras in a way that attempts to avoid incidental coverage, but cameras may overlook open offices or offices with glass doors and walls. Additionally, video cameras may be required in research areas based on particular grant requirements.

WPI reserves the right to install video cameras when requested by law enforcement (e.g., WPI Campus Police). Private areas where students and staff could reasonably expect complete privacy (e.g., locker rooms or bathrooms) will not be the subject of camera installation and monitoring except as required by law.

Lecture capture cameras and fixed cameras installed overlooking public places for TV broadcasts, websites, and other promotional uses are not subject to this policy.

3.0 Definitions

As used within and for the purposes of this policy, the following terms are defined as follows.

Private areas: areas in which a person has a reasonable expectation of privacy, including, but not limited to, non-common areas of residence halls, residence hall corridors, bathrooms, shower areas, locker and changing rooms, and other areas where a reasonable person might change clothes.

Public areas: areas made available for use by the public, including, but not limited to, campus grounds, parking areas, building exteriors, loading docks, areas of ingress and egress, classrooms, lecture halls, study rooms, lobbies, theaters, libraries, dining halls, gymnasiums, recreation areas, and retail establishments. Areas of the University in which persons would not have a reasonable expectation of privacy, but to which access is restricted to certain University employees, such as storage areas, shall also be considered public areas for the purpose of this policy.

Security camera: a camera used for monitoring or recording public areas for the purposes of enhancing public safety, discouraging theft and other criminal activities, and investigating incidents.

Security camera recording: a digital or analog recording of the feed from a security camera.

Security camera system: any electronic service, software, or hardware directly supporting or deploying a security camera.

4.0 Policy

WPI may use security cameras to enhance the safety and security of students, employees, and property, discourage the occurrence of unlawful behavior, enhance the ability to identify offenders, and as a means of maintaining situational awareness of activities occurring in and around campus. The camera system is not continuously monitored but provides for the use of “live feed” and, when necessary, a review of the recorded video that may be used in the furtherance of an investigation.

5.0 Implementation and Administration

Responsibility for oversight of the installation, maintenance, and utilization of security cameras and associated policies, standards, and procedures is that of the Director of Public Safety and Chief Technology Officer (CTO).

These responsibilities include:

- creation, maintenance, and review of a campus strategy for the procurement, deployment, and use of security cameras, including this and related policies;
- designation of the standard campus security camera system or service;
- authorizing the placement of all security cameras;
- authorizing the purchase of any new security camera systems;
- reviewing existing security camera systems and installations and identifying modifications required to bring them into compliance with this policy;
- creating and approving campus standards for security cameras and their use; and
- creating and approving procedures for the use of security cameras.

Camera Register:

A camera register will be maintained by the CTO and reviewed by the Director of Public Safety. The register will contain the following information:

- Location of camera
- Hours of operation
- Installation date
- Operational status review
- Location of recorded video storage

Use and Management of Recorded Video:

- Recorded video shall not be used or disclosed for purposes other than those specified in this camera policy. Requests for release of recorded material set forth in subpoenas or other legal documents compelling disclosure should be submitted to the General Counsel prior to any release.
- All recorded video and their contents are the copyrighted property of WPI and shall not be copied, distributed or used for any broadcast, performance, or publication without the express written direction of the Director of Public Safety or his / her designate, except when such actions are taken by law enforcement in conjunction with investigations or criminal prosecutions.
- The Director of Public Safety will have access to all recorded video and has the right to control, view, hold, store, and dispose of recorded video in accordance with this policy.
- The Director of Public Safety or his/her designee will be responsible for reviewing the recorded video according to the terms of this policy. No review of the recorded video will be done unless the Director of Public Safety or his/her designee is present.
- Unless the Director of Public Safety instructs otherwise, recorded video must be kept for thirty (30) days, after which it must be erased or destroyed unless a particular law or policy requires otherwise (e.g., for an ongoing litigation or investigation, pursuant to a subpoena, or as a record to substantiate WPI decisions regarding such investigations). Copies of recorded video will not be made unless they are relevant to the matter being investigated and authorized in writing by Director of Public Safety.
- Video footage will be stored on servers accorded appropriate computer security with access by authorized personnel only.
- Requests for release of recorded material must be approved by the Director of Public Safety.
- Records of access to and release of, Security Camera recordings must be sufficient to demonstrate compliance with this policy.

Positioning Cameras:

- The Director of Public Safety will be responsible for approving the location and geographical viewing area of any proposed camera installation. This will be done after a review of a written proposal demonstrating such need. The CTO will be responsible for installation.

- The installation of a temporary camera is limited to a specific need, such as an event or ongoing investigation, which will be determined by the Director of Public Safety in accordance with this policy.
- Inoperable, fake, or "dummy" video cameras or housings shall not be used.
- All video camera installations should be visible, unless a law enforcement agency such as WPI Campus Police, dictates otherwise (e.g. for use in a criminal investigation).

6.0 WPI Security Camera Roles

Director of Public Safety/Chief

Worcester Polytechnic Institute
100 Institute Road
Worcester, MA 01609
Phone: (508) 831-5470

Assistant CIO & CTO

Worcester Polytechnic Institute
100 Institute Road
Worcester, MA 01609
Phone: (508) 831-5473
Fax: (508) 831-5715

7.0 Enforcement

Any person that violates any of the measures found in this policy will be subject to disciplinary action, which may include termination or dismissal from WPI, or other appropriate disciplinary action.

8.0 Approval and Revisions

Policy Category: Institutional Risk & Compliance

Policy Approved By: Approved by WPI's Information Security, Risk and Compliance Committee on 2/15/19.

Policy Reviewed Annually By: Director of Public Safety

Related University Policies: None

Last Modified: 10/29/18

Rationale:

CITP has been reviewing and recommending revisions to the Security Camera Policy since Spring 2021, when the committee raised several concerns about the impact of this policy on community privacy, most notably:

- Definitions of private areas and public spaces that inconsistently included academic spaces
- Concern that some private areas (such as faculty offices) may inadvertently fall under surveillance, with no protection or recourse
- No clear policy language disallowing automated facial recognition
- Whether there are live feeds for the cameras, or solely recorded video
- Concern about a growing culture of surveillance and its impact on community wellbeing
- Lack of accountability and oversight of access to video data

The policy has been substantially rewritten. Major changes, including those that aim to address the concerns previously raised by the Faculty, include:

- Introducing a specific definition of “academic space” (Section III)
- Clarified language that security cameras may not be installed in private or academic areas, except temporarily in the case of a need to comply with a search warrant (Section IV.B)
- Added language that disallows the use of automated facial recognition by WPI (Section IV.C)
- Added language stating that active monitoring is not permissible except in special events or compliance with external orders (Section IV.C) and that the community will be notified whenever active monitoring is expected (Section IV.D).
- Added language that protects employees from the use of cameras to surveil workplace attendance or work performance; clarified that security cameras only take video recordings with two exceptions (Section III)
- Added language explicitly protecting against the use of security cameras to monitor individuals without probable cause of a search warrant (Section IV.C)
- Added language that clarifies the roles of the Chief of Police and the Chief Information Officer with regard to compliance with policy (Section IV.G)

DRAFT RESOLUTION
**Divesting, Investing, and Transforming for Carbon Neutrality:
Accountability in Energy Systems, Climate Action, and Sustainability
at Worcester Polytechnic Institute**

Sponsor: The Worcester Polytechnic Institute Faculty

Whereas climate change is a global crisis that is [a paramount threat](#) to the lives and livelihoods of current and future generations necessitating bold, immediate action; and the Intergovernmental Panel on Climate Change has [stated](#) that global greenhouse gas emissions, the majority of which are produced by the combustion of fossil fuels, must be reduced to net zero by 2050 to avoid the worst impacts of climate change. Beyond simply curating and exacerbating disasters and driving unprecedented displacement of vulnerable people, climate change is one of the leading causes of the mass species extinction crisis and mounting biodiversity losses, and [poses a substantial threat](#) to global food supplies, to world peace, and to the global economy;

Whereas the fossil fuel industry bears significant responsibility for the emissions that drive climate change (100 companies responsible for the emission of roughly [71% of the world's carbon dioxide](#), the most prevalent greenhouse gas, since anthropogenic climate change was officially recognized). Reaching first a state of carbon neutrality and then full net-zero GHG emissions are critical steps along the way to reducing overall climate change impacts;

Whereas historically, institutions of higher education, and particularly the nation's most visible and influential institutions, have been effective conduits for social change and leadership on issues of moral uncertainty. This is exemplified through [rejection of the tobacco industry](#) (for which the discourse closely parallels that of the fossil fuel industry) in the 1990's, and [South African apartheid](#) before that. Experts acknowledge that [divestment at scale is an effective way to combat climate change](#);

Whereas [student body presidents from the Big 10 Conference](#) and the [Ivy League](#) and diverse [faculties from Harvard University](#) to the [University of South Carolina](#) each passed a unanimous resolution to endorse divestment of their universities' endowment funds from fossil fuels in response to the tremendous harms that these companies pose to student and alumni wellbeing; and [the WPI Student Government has also passed such a resolution in May of 2022](#);

Whereas Worcester Polytechnic Institute emphasizes student well-being as a major pillar of its most recent strategic plan, [Lead with Purpose](#), while describing climate change as a major challenge to the planet. Student mental health is tremendously impacted by climate change, and climate action is a critical response, in addition to mental health resources [\[https://www.washingtonpost.com/climate-solutions/2022/09/12/climate-change-stress-college-therapy-programs/\]](https://www.washingtonpost.com/climate-solutions/2022/09/12/climate-change-stress-college-therapy-programs/). Worcester Polytechnic Institute can address both of these challenges by directly engaging in climate action to support a sustainable world;

Whereas Worcester Polytechnic Institute, a university known for its ability to “think globally, act locally,” recognizes the importance of considering the implications of its own local actions within a global context and climate crisis. A great deal of student and faculty [research](#), as well as coursework (<https://www.wpi.edu/offices/sustainability/academics-research>), and [students projects](#) at Worcester Polytechnic Institute are dedicated to sustainability, and the university has initiated much relevant work through the Office of Sustainability; we must ensure that our theory and practice are aligned across the institution and that the needed financial and staffing support exists to implement our Sustainability Plan and other new initiatives for energy and climate action;

Whereas Worcester Polytechnic Institute has already demonstrated a strong resolve to evaluate its financial practices by signing onto the [Principles for Responsible Investing \(PRI\)](#), a United Nations-supported framework and reporting tool for responsibly managing investments in September 2021, ceasing direct investments in fossil fuel assets and agreeing to abide by PRI’s [six principles](#), which include environmental, social, and governance issues in investment analysis and decision making. We have also signed onto the [Second Nature Carbon Commitment](#) in April of 2022, as well as having participated in the [AASHE STARS](#) tracking system since DATE. now need to track these commitments, and to create actionable plans and timetables for moving to the next level of both the PRI and the Second Nature Climate Commitment;

Whereas divesting is both a commitment and a process, developing a divestment plan and timeline will take some time. Making the promise and creating a specific timeline to implement a cleaner investment strategy; the Principles for Responsible Investing [discuss that divestment](#) “communicate[s] to the wider market that the investor believes the targeted company’s long-term strategy is likely to remain misaligned with relevant sustainability performance thresholds.” Fossil fuel companies contribute significantly to the climate crisis and are contraindicated with an ecologically sustainable economy. While Worcester Polytechnic Institute has not been directly investing in fossil fuel companies, we must continue the process of moving our investments away from the indirect support of fossil fuel industries and, as complex and diversified investments that support fossil fuel sunset, ensure that we are reinvesting in companies that support a sustainable energy transition and economy. Making no change and remaining invested even indirectly in fossil fuels cannot help us to move up the levels of the PRI or Second Nature in a timely way, as agreed upon by this university;

Whereas for reasons both moral and financial, institutions across the world are beginning to act on divestment from fossil fuels. Peer universities like the [University of California system](#), among other schools, have committed to divest on [solely financial grounds](#), while others like [Georgetown University](#) have made the same decision as a part of their commitment to sustainability. Likewise, top universities have reaffirmed their core values through divesting, such as [Harvard University’s decision to divest](#) based on their responsibility “as fiduciaries to make long-term investment decisions that support our teaching and research mission.” These universities are among [a growing list](#) of institutions acting on divestment, including but not limited to [US cities](#), philanthropies like the [Rockefeller Foundation](#) (whose wealth stems from fossil fuels), [the Vatican](#), and even [entire countries](#). And, at this point, many of our peer institutions have already achieved [carbon neutrality](#) (see <https://secondnature.org/climate-action-guidance/carbon-neutral-colleges-and-universities/>);

Whereas the employees of Worcester Polytechnic Institute currently have minimal ability to select responsible fossil-free investments for their retirement, since the TIAA-CREF ESG SocialChoice fund maintains significant fossil investments (<https://www.ciel.org/news/tiaa-faces-climate-washing-complaint-brought-by-academics/>). The Fidelity Parnassus fund, however, does not (<https://fossilfreefunds.org/families?q=Fidelity%20Investments>), so there is a single option. We, as educators, taxpayers, and citizens of the world, whose communities are already feeling the impacts of climate change, and whose future is in jeopardy, have both a responsibility and a right to demand that our university institution is no longer complicit in the harms of fossil fuel companies; and that the university creates opportunities for employees to personally divest their retirement funds from fossil fuels. With our peers already suffering the plights of drought-induced [forest fires](#), [civil unrest](#), [displacement due to rising sea levels](#), and [urban pollution](#), we feel compelled to call upon our university to take responsibility for the well-being of their constituents and lead the nation and the world towards a brighter and more sustainable future, as well as give employees the opportunity to do the same with our retirement funds;

Whereas the demands of climate action highlight our commitment to “walk the walk”—just as our strategic plan, [Lead with Purpose](#) (<https://www.wpi.edu/offices/president/wpi-strategic-plan-2021->

[2026](#)), dictates. According to WPI’s recent NECHE Institutional Self-Study, “WPI’s lowest rated [learning] outcome by faculty and students is ethical development” [https://www.wpi.edu/sites/default/files/WPI_NECHE_Self-Study_MEA.pdf] WPI’s role as an institute of higher education is to cultivate the minds and talents of the next generation of humanity. Specifically, Worcester Polytechnic Institute’s vision is to improve society through the advancement of science and technology. Worcester Polytechnic Institute must take our current Strategic Plan seriously and remember that we can only better society through the application of STEM for the greater good. In *Lead with Purpose*, “[w]e recognize that cultural competence, ethical reasoning, and historical understanding must align with technical capabilities to develop empathetic, collaborative, and creative STEM professionals”; we state further, “[a]s global citizens, we respect our natural environment and acknowledge the responsibility we all have to develop and disseminate sustainable stewardship practices for our planet.” We cannot be (or train) successful engineers, scientists, researchers, or professionals if our innovations ultimately cause more harm than good. Nowhere is this more apparent than with climate change. Industrial revolutions significantly advanced our society, while creating the largest threat to our species we have ever seen;

Whereas, we have at Worcester Polytechnic Institute committed to the creation of a new Center for Sustainability (launch in FY2023) that will directly advance multiple objectives under the current [campus Sustainability Plan \(https://www.wpi.edu/sites/default/files/2021/01/08/Sustainability_Plan_2020-2025_Post1.1.pdf\)](https://www.wpi.edu/sites/default/files/2021/01/08/Sustainability_Plan_2020-2025_Post1.1.pdf)) including increasing Worcester Polytechnic Institute’s reputation in sustainability research; promotion of cross-disciplinary approaches and systems approaches; addressing the SDGs; and working to solve significant global issues by engaging research, projects, and coursework. We now call on the administration, faculty, staff, students, and wider alumni and community networks to work together to “walk the walk” by advancing a WPI campus “Culture of Sustainability” that includes carbon neutrality goals and ethical actions, allowing us to be a model for others as we reach out to meet community needs beyond Worcester Polytechnic Institute. Our peer institutions in Worcester, Clark University and Holy Cross University, have committed to carbon neutrality by 2030 and 2040, respectively. At the least, we can aim for 2035 to reach the same goal;

Whereas given the institutional power we wield, the clear and pressing need to make the transition to cleaner, more sustainable energy systems, a circular economy, and a society more resilient to the unparalleled havoc that the climate crisis promises to deliver; **now, therefore, be it**

Resolved, that the Worcester Polytechnic Institute Faculty:

- 1. Hereby acknowledges the severity of climate change, and further, the need for swift action to prevent the earth’s average temperatures from warming more than 1.5 °C to ensure a habitable future;**
- 2. Advocates that Worcester Polytechnic Institute, having already ceased new direct investment in fossil fuels, further commits to sunseting existing fossil investments, even if indirect (as defined below) via a public declaration made in FY2023;**
- 3. Calls on the leadership of Worcester Polytechnic Institute to create a divestment plan in FY2024, with full divestment of endowment funds from the fossil fuel industry by FY2030 or as the existing investments that include support of fossil fuels sunset (accountability table to be provided for tracking this process);**
- 4. Calls on the leadership of Worcester Polytechnic to ensure by the end of FY2023 that more responsible retirement investment options that attend to ESG goals (and specifically**

excluding fossil fuel investments) are made available to faculty and staff as part of their retirement benefits plans;

5. Calls on the Division of Finance & Operations to develop a plan by FY2024 for pursuing the highest possible ratings under the Principles for Responsible Investment, with annual communications on the fulfillment of the plan and current ratings to the Student Government Association and the Green Team;
6. Calls on the Division of Finance & Operations to develop a plan by FY2024 for meeting the requirements of the Second Nature Carbon Commitment, and then moving on to meeting the more extensive goals of the Second Nature Climate Commitment, with annual communications on the fulfillment of the plan and current ratings to the Student Government Association and the Green Team;
7. Supports the replacement all of our police and facilities vehicles with hybrid, electric, or fuel cell vehicles as their useful lives expire, with a goal of 2030.
8. Requests that the stated efforts to aggressively pursue energy efficient and transformative strategies for central utility improvements and renewable energy technologies, in new and existing buildings, including collaboration with WPI's faculty, staff, and students to reduce energy-related emissions with strategies (including, but not limited to, LED lighting upgrades, HVAC optimization, heating and cooling system improvements, addition of geothermal, and on- and off-campus solar), are publicly tracked so that the WPI community can see continuing progress on these actions.
9. Strongly supports and actively engages with WPI Administration, Staff, and Students to develop the new campus Center for Sustainability as well as to promote the attendant ethics required for a campus "Culture of Sustainability" that includes attention to principles of a circular economy as a priority element for our institutional mission, in support of stated values in the current WPI strategic plan.
10. Requests that by FY2024, WPI commits to a plan for achieving carbon neutrality status on campus by 2035.

SIGNATORIES:

Worcester Polytechnic Institute Faculty

Definition of Fossil Fuel Divestment:

While there is no universally accepted definition for what it means to be divested from fossil fuels, in alignment with guidelines outlined by 350.org, we believe that a fossil fuel free portfolio includes but is not limited to:

- No investments (direct or indirect) in any of the [top 200 fossil fuel companies](#) by size of reserves.
- No investments (direct or indirect) in any company that explores for, extracts, processes, refines, or transmits coal, oil, and gas.
- No investments (direct or indirect) in any utilities whose primary business function is to burn fossil fuels to produce electricity.

For more information regarding carbon risk and fossil fuel divestment, explore [this comprehensive list of resources](#) compiled by the Intentional Endowments Network and [this guide to Fossil-Free Investing](#) by Trillium Asset Management.

For inquiries, reach out to gr-divestWPI@wpi.edu

This Resolution was authored by the Faculty at Worcester Polytechnic Institute with portions by DivestWPI and the Student Government Association at Worcester Polytechnic Institute.

This Resolution was inspired by the [Ivy League Universities Resolution for Fossil Fuel Divestment](#) written by the [Student Sustainability Association at Penn](#) and the [University of Pennsylvania Undergraduate Assembly](#), and passed by the student body presidents of the universities that make up the Ivy League universities. Their Resolution was also inspired by [Big 10 Schools Divestment Resolution, which was passed](#) by the student body presidents of the universities that make up the Big 10 Conference.

Appendix
Consent Agenda Motions

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof. Elgert, Chair)
Re: Motion to add ECON 3100: Economics of Climate Change

Motion: On behalf of the Department of Social Sciences and Policy Studies, the Committee on Academic Operations recommends and I move that ECON 3100: Economics of Climate Change, as described below, be added.

Proposed Course Description:

ECON 3100: Economics of Climate Change. Cat II

The accumulation of carbon dioxide and other greenhouse gases such as methane are projected to increase global warming by 2 to 5 °C by the end of this century with impact on the environment, economy, and society. This course explores the economic causes and consequences of climate change and potential solutions to reduce its impacts. We will assess climate change policies in the U.S and globally and use economics tools to evaluate their costs and benefits and distributional effects between poor and rich countries.

Recommended background: Introductory Microeconomics (Econ 1110)

Anticipated Instructor and Contact: Prof. Vedogbeton (SSPS)

Rationale:

Upon completion of the course, successful students will be able to:

- Understand economics perspectives on climate change
- Examine climate change policy designs and implementation strengths and weaknesses
- Use economic tools to evaluate climate change policies
- Develop and carry out empirical economic research

Assessment:

1. WPI Course Evaluations. These include Questions 1,2,9, and 26
2. Instructor reflection and periodic mini-surveys to gather student feedback.

Resource Needs:

- Instructor (Prof. Vedogbeton is qualified to teach the course)
- Classroom (expected enrollment: 40 students)
- Laboratory (none needed)
- Library resources (Normal support)
- Information Technology (Normal support)

Impact on Distribution Requirements: This course will provide another option for students to fulfill the social science requirement.

Implementation Date: AY 2022/23; Preferred term - D

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof. Elgert, Chair)
Re: Motion to add ENV 3500: Women and the Environment

Motion: On behalf of the Department of Social Sciences and Policy Studies, the Committee on Academic Operations recommends and I move that ENV 3500: Women and the Environment, as described below, be added.

Proposed Course Description:

ENV 3500: Women and the Environment. Cat II

This course examines the perceived, existing, and potential links between women and the environment with an emphasis on the roles of women in environmental movements, climate change, climate justice, forest conservation, water management, disaster recovery, women perceptions of environmental risk, and other environmental issues. Through reading, discussion, documentary films and research project, we will explore how social, economic, political and cultural systems that shape women's environmental experiences and their resistance and strategies for social change.

Recommended background: None

Anticipated Instructor and Contact: Prof. Vedogbeton

Rationale:

Upon completion of the course, successful students will be able to:

- Recognize and assess the various linkages between economic development, the environment, and social struggles
- Understand the ways in which environmental issues are “gendered”
- Explain the interconnection of gender and the environment
- Understand women's roles as leaders of some groundbreaking environmental movements & policy initiatives in the US and globally
- Analyze the intersections of gender, race/ethnicity, and class in environmental policies and movements

Assessment:

1. WPI Course Evaluations. These include Questions 1,2,9, and 26
2. Instructor reflection and periodic mini-surveys to gather student feedback.

Resource Needs:

- Instructor (Prof. Vedogbeton)
- Classroom (expected enrollment:40 students, live-plant materials (instructor supplied)]
- Laboratory (none needed)
- Library resources (Normal support)
- Information Technology (Normal support)

Impact on Distribution Requirements: This course will provide another option for students to fulfill the social science requirement.

Implementation Date: AY 2023/24; Preferred Term A

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof. Elgert, Chair)
Re: Motion to remove the minor in Political Science and the Law from the SSPS offerings

Motion: On behalf of the Department of Social Sciences and Policy Studies, the Committee on Academic Operation recommends and I move that the minor in Political Science and Law be removed from the SSPS program offerings.

Description of Proposed Undergraduate Catalog Changes:

There is no mention of this minor in the current catalog.

Rationale:

This motion requests to remove the minor Political Science and the Law from the catalogue. There are no current minors and there have been none in recent memory.

Impacts on students: There are no students taking advantage of the minor and there should be no impacts.

Resources Needed: None

Implementation Date: AY 2022/2023

Contact: Prof. Krueger (SSPS)

Date: December 19, 2022

To: WPI Faculty

From: Committee on Academic Operations (Prof. Elgert, Chair)

Re: Motion to consolidate the titles of three SSPS Programs into the Program in Technology, Policy, and Sustainability

Motion: On behalf of the Social Sciences and Policy Studies Department, the Committee on Academic Operation recommends and I move that the titles of three SSPS programs (International Development, Environment, and Sustainability (IDEaS); Economics Science; and Society, Technology, and Policy) be consolidated under the single title: Program in Technology, Policy, and Sustainability – as described below..

Description of the Motion:

This motion consolidates the titles of existing SSPS programs in:

- International Development, Environment, and Sustainability.
- Economics Science; and
- Society, Technology, and Policy

to the Program in Technology, Policy, and Sustainability. The name change only extends to the program and not the majors or minors. The new program will house the Environmental and Sustainability Studies and Economics majors as well as a new major, Policy Studies.

Proposed Catalog Description:

Technology, Policy, and Sustainability

The Technology, Policy, and Sustainability Program trains students to investigate and design meaningful and appropriate solutions for the social, economic, environmental, and technical grand challenges of our time. We confront these challenges from multiple perspectives and through examining bridging conventional with the unconventional.

Students in our program work alongside faculty, as well as independently, to advance knowledge of these challenges and develop just and sustainable solutions to them. Our areas of expertise, which are postured globally, are: design for social justice, policy evaluation, the economics of inequality, the environment, sustainability, and systems thinking.

Why study at WPI? As an undergraduate you study with renowned program faculty from across campus to form a meaningful interdisciplinary perspective on global grand challenges. You will collaborate with innovators in the fields of engineering, natural sciences, the social sciences, and humanities to fulfill WPI's core mission: to create, discover, and convey knowledge at the frontiers of technological academic inquiry for the betterment of society. The experience will offer you the cross-cutting analytical frameworks and design skills to develop a systemic understanding of your skills and interests and their place in the community.

The program offers an undergraduate experience with areas of specialization and concentrations that reflect unique form of publicly engaged scholarship of our program, department, and WPI. Students who excel in their major may wish to consider pursuing our BA/MS program in Science and Technology

for Innovation in Global Development. This program offers students from all backgrounds a global perspective in areas ranging from data science and biomedical engineering, to business and entrepreneurship, international development, or health sciences

About Us

We are critical, purpose-driven scholars from economics, human geography, international development, political science, psychology, sociology, cultural studies, systems thinking, and human-environment relations in a global polytechnic community. Here, we collaborate with faculty, students, policy makers, and community partners from across campus and the world to examine the challenges surrounding sustainable design, including solutions for economic security, ecological integrity, and social justice. This arrangement uniquely positions us to analyze, inform, and shape responses to society's grand challenges, locally and globally. We are leaders in urban sustainability and planning; critical race studies; environmental and climate justice; global development; economics; system dynamics; cross-cultural design for technology and innovation; and policy and evaluation.

Our faculty actively work towards and promote a culture of belonging, equity, and integrity. Living deliberately by these values and employing them in our teaching and research upholds our belief that science, technology, and innovation, are crucial to society's existence, but these interventions alone cannot bring about a truly sustainable society.

Social systems, political institutions, and policies must be constantly examined and refined to support the diverse and sometimes competing ends. As a student in our program you will see your work - as natural scientists, engineers, social scientists, and humanists - in exciting new ways that will help you develop marketable professional skills. In parallel, you will cultivate your innovative capacity across the necessary domains to make the world a better place.

Our Vision

To be transdisciplinary hub for collaboration among students, faculty, and our global partners to creatively investigate and address the global grand challenges, whether at the local, regional, or global scale.

Our Mission

We strive to be thinkers and doers who work with students to solve increasingly complex grand challenges through domestic and international partnerships. We will use cutting-edge technical knowledge, rigorous analytical skills, creativity, and inclusivity of culture and context to develop concise solutions to real world problems.

Our Degree Offerings

Currently, our program offers three degrees: Environmental and Sustainability Studies, Economics, and the new Policy Studies degree. In addition to these degrees, we offer minors in economics, system dynamics, science and engineering for development These cross-cutting offerings help you understand the role of your work in society so that you can realize your innovative potential in the service of people and the environment.

Rationale:

The change in name reflects the evolution and integration of the program, department talent, and student

interest. This integration will enable us to better deploy our scarce resources while creating a program that represents the faculty from previous programs. In addition, we have created more structure for students than the STP major previously offered. The new name reflects the current faculty teaching and scholarly interests along these themes of science and technology, policy, environment, and sustainability.

Impacts on students: There are no real impacts to this name change. Students and faculty will have to learn the name of a new program. Students enrolled in the current STP major will have the option of changing to one of the majors or staying with the requirements of the existing STP major.

Resource Needs:

No new resources are required.

Implementation Date: AY 2022/23

Contact: Prof. Krueger (SSPS, Dept Head), krueger@wpi.edu.

APPENDIX:
WEB PAGE COPY

Sound bite at the top (draft):

The Technology, Policy, and Sustainability Program in trains students to investigate and design solutions for the social, economic, environmental, and technical grand challenges of our time. We confront these challenges from multiple perspectives and through examining alternative conceptual and methodological approaches.

Students will work alongside faculty, as well as independently, to advance knowledge of these challenges and develop just and sustainable solutions to them. Our areas of expertise, which are postured globally, are: design for social justice, policy evaluation, the economics of inequality, the environment, sustainability, and systems thinking.

Description (draft):

Working as social scientists at a STEM-focused university we work with faculty and students from across campus to examine the challenges to and solutions for sustainable development: We work with our partners:

- in physics understand the social and environmental implications of a new generation of solar panels;
- in engineering colleagues to define problems and solutions that will have a positive impact on the communities where we work;
- in communities to develop solutions for improved health and well-being by designing solutions that draw upon the skills and materials found in those communities;
- in government and NGOs to develop procedures and policies that sustain positive interventions so that they work for the people they were designed to help.

Our combination of disciplines and our collaborations across campus—and the world—makes us uniquely placed to inform and shape responses to the grand challenges facing society, from our local

communities to those far away. Our particular strengths lie in areas of: urban sustainability and planning; critical race studies; environmental and climate justice; global development; economics; system dynamics; cross-cultural design for technology and innovation; and policy and evaluation.

Our team actively works towards and promotes a culture of inclusion, equality, and integrity. Living deliberately by these values and bringing them into our classrooms, our research projects, and our collaborations, supports our belief that science, technology, and innovation are crucial to our society's existence, but these interventions alone cannot bring about a just society. The social systems, political institutions, and policies must be constantly examined and refined to support the diverse and sometimes competing ends.

As a student in our program, you will see your work as natural scientists, engineers, social scientists, and humanists, in exciting new ways that will help develop marketable professional skills as well as your creativity and cultivate your innovative capacity across the necessary domains to make the world a better place.

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof. Elgert, Chair)
Re: Motion to establish a Policy Studies major in SSPS

Motion: On behalf of the Department of Social Sciences and Policy Studies, the Committee on Academic Operations recommends and I move that the major in Policy Studies be established, as described below.

Description of Proposed Major:

SSPS seeks to combine its strengths and existing programs into a single degree, Policy Studies - described as follows:

Requirements for the Major in Policy Studies: General Policy Studies

The normal period of residency at WPI is 16 terms. In addition to the WPI requirements applicable to all students, completion of a minimum of 9 2/3 units of study is required as follows:

Major in Policy Studies Distribution Requirements:

- | | |
|---|-------------|
| 1. Foundation Courses (See note 1) | 1 2/3 units |
| 2. Mathematics (See note 2) | 1 unit |
| 3. Basic Sciences (See note 3) | 1 unit |
| 4. Core Courses | 3 units |
| 5. Science and Engineering Studies (See Note 4) | 2 units |
| 6. MQP | 1 unit |

Total: 9 2/3 units

University Requirements: 1/3 unit of wellness, 2 units of HUA Requirement, 1 unit of IQP.

Notes:

1. Must include: ECON 1110, ECON 1120, GOV 1301, GOV 1303, and GOV 1310
2. Must include: two Calculus courses at the level of MA 1020 or higher, and 1 Statistics - MA 2610 or 2611 or 2612
3. Must include: one unit of basic science (CH, PH, BB, GE designations)
4. May be drawn from another major and must be at the 2000-level or above.

Core Courses

Core courses comprise the heart of a WPI Policy Studies degree. To complete this requirement, a student will demonstrate policy analysis and methodological competency, as well as global perspective. Students may also choose to concentrate in a specific policy domain. Please see the interdisciplinary concentrations.

Policy Analysis and Methodological Competency

Must include ECON 3126, ECON 3130, GOV 3100 (Policy Design and Evaluation), DEV 540/DEV 4400 Research Methods, and either ENV 1500 or DS 1010.

Global Perspective

Must include four thematic courses on a region, language, global justice, development, environment, or gender (two must be 2000-level or above and drawn from HUA or SSPS courses).

Rationale:

SSPS seeks to combine its strengths and existing programs into a single degree, Policy Studies.

Faculty interest, resources, and workload, changing student interest, and reducing the need for adjuncts motivates this new major. The new major meets the needs of current Society, Technology, and Policy students while giving them a more directed, rigorous, and therefore, more meaningful educational experience. The current STP program has only one full-time faculty member teaching the courses. By bringing STP under a new umbrella of Policy Studies, a major that was designed by the entire program faculty, we bring more rigor and structure to a relatively ill-defined major. The new structure also reflects the changing needs of employers and expectations of graduate schools. Students interested in Economic Science can continue to pursue their interest in Economics, albeit with a focus on policy design and evaluation and complex systems thinking.

Impacts on Departments and Programs: The new program development committee has had members from the School of Arts and Sciences, the School of Engineering, and the Global School. In addition, members of the Department of Integrative and Global Studies (DIGS) served on this committee. The DH of DIGS was involved in the process of developing the new major.

Impacts on students: Students will have more opportunities for course work, more one-on-one with faculty, and access to projects that reflect the strengths and interests of the department and its affiliated faculty.

Resource Needs: None

Implementation Date: AY 2022/23

Contact: Prof. Krueger (SSPS)

Affiliated Faculty: Barfuor Adjei-Barwuah (SSPS), Crystal Brown (SSPS), James Doyle (SSPS), Laureen Elgert (DIGS), Katherine Foo (DIGS), Robert Krueger (SSPS), Courtney Kurlanska (DIGS), Oleg Pavlov (SSPS), Mike Radizicki (SSPS), Derren Rosbach (DIGS), Khalid Saeed (SSPS), Ingrid Shockey (DIGS), Alex Smith (SSPS), Gbeton Somasse (SSPS), Lisa Stoddard (DIGS), Hermine Vedogbeton (SSPS)

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof. Elgert, Chair)
Re: Motion to change ECON 2125 to ECON 3125

Motion: On behalf of the Department of Social Sciences and Policy Studies, the Committee on Academic Operations recommends and I move that the number of ECON 2125: Development Economics be changed to ECON 3125.

Proposed Changes to the Course Description:

ECON 2125 3125 Development Economics. Cat II

This course is a general introduction to the field of development economics. The focus is on ways in which a developing country can increase its productive capacity, both agricultural and industrial, in order to achieve sustained economic growth. The course proceeds by first examining how economic growth and economic development are measured and how the various nations of the world compare according to well-known social and economic indicators. Theories of economic growth and theories of economic development are then examined, as are the various social and cultural structures that are thought to influence economic progress. The inputs to economic growth and development (land, labor, capital, entrepreneurial ability, education, technical change), and the possible distributions of income and levels of employment that result from their use, is considered next. Domestic economic problems and policies such as development planning, the choice of sectorial policies, the choice of monetary and fiscal policies, rapid population growth, and urbanization and urban economic development are then examined. The course concludes with a consideration of international problems and policies such as import substitution and export promotion, foreign debt, foreign investment, and the role of international firms. In conjunction with a traditional presentation of the above topics, the course curriculum will include the use of computer simulation models and games. These materials have been formulated with a simulation technique, system dynamics, that has its origins in control engineering and the theory of servomechanisms. As a result, students will find them complementary to their work in engineering and science. In addition, the various development theories and simulation and gaming results will be related, where possible, to specific developing nations where WPI has on-going project activities (e.g., Costa Rica and Thailand). This course is recommended for those students wishing to do an IQP or MQP in a developing nation. This course will be offered in 2021-22, and in alternating years thereafter. *Students may not receive credit for ECON 2125 and ECON 3125.*

Recommended background: Introductory Microeconomics (Econ 1110)

Anticipated Instructor: Professor Gbeton Somasse

Rationale:

The new number better represents the course content and provides a better, progressive pathway through the program.

Contact: Prof. Krueger (SSPS)

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof. Elgert, Chair)
Re: Motion to change ECON 2117 to ECON 3117

Motion: On behalf of the Department of Social Sciences and Policy Studies, the Committee on Academic Operations recommends and I move that the number of ECON 2117: Environmental Economics be changed to ECON 3117.

Proposed Changes to the Course Description:

ECON ~~2117~~ 3117: Environmental Economics. Cat II

This course investigates the effect of human activity upon the environment as well as the effect of the environment on human well-being. It pays special attention to the impact of production and consumption of material goods upon the quantity and quality of environmental goods. The analysis focuses on the challenges presented in mixed economies where markets are combined with government intervention to manage pollution and scarcity. The course reviews efforts to measure the costs and benefits of improving environmental conditions and evaluates current and potential policies in terms of the costs of the environmental improvements they may yield. Attention is also paid to the special difficulties which arise when the impacts of pollution spill across traditional political boundaries.

Recommended background: Introductory Microeconomics (Econ 1110)

Students may not receive credit for both ECON 2117 and ECON 3117.

Anticipated Instructor: Professor Gbeton Somasse

Rationale:

The new number better represents the course content and provides a better, progressive pathway through the program.

Impact on Distribution Requirements: This course will provide another option for students to fulfill the social science requirement.

Implementation date: AY23/24. This course will be offered in 2023-24, and in alternating years thereafter.

\ **Contact:** Prof. Krueger (SSPS)

Date: December 19, 2022

To: WPI Faculty

From: Committee on Academic Operations (Prof. Elgert, Chair)

Re: Motion to change GOV 2312: International Environmental Policy to GOV 3312

Motion: On behalf of the Department of Social Sciences and Policy Studies, the Committee on Academic Operations recommends and I move that the number of GOV 2312: International Environmental Policy be changed to GOV 3312.

Proposed Changes to the Course Description:

GOV 2312 3312: International Environmental Policy. Cat II

Environmental issues present some of the major international problems and opportunities facing the world today. Worst case scenarios envision irrevocable degradation of the earth's natural systems, but virtually every analysis sees the need for major change worldwide to cope with problems such as global warming, deforestation, ozone layer depletion, loss of biodiversity, and population growth, not to mention exponential increases in "conventional" pollutants in newly industrialized countries. The global environment issues represent a "second-generation" of environmental policy in which the focus of concern has moved from national regulations to international law and institutions. In addition, the environment has emerged as a major aspect of international trade, conditioning corporate investment and accounting for some \$200 billion in sales of pollution control equipment in 1991. Exploration of the genesis and implications of these phenomena is the essence of the course. Typically, the material begins with the nature of global environmental problems, drawing on literature from large-scale global modeling as well as particular analyses of the problems mentioned above. Approximately half the course focuses on international laws and institutions, including multilateral treaties (e.g., the Montreal Protocol limiting CFC use, ocean dumping, biodiversity), international institutions (UNEP, the Rio Convention, the OECD) and private initiatives (international standards organizations, ICOLP (Industry Committee for Ozone Layer Protection), etc.) In addition, US policy toward global environmental issues will be compared with that in Japan, Europe and developing countries, from which it differs significantly. Students will design and undertake term projects that address particular issues in detail in an interdisciplinary manner. This course will be offered in 2021-22, and in alternating years thereafter. *Students may not receive credit for GOV2312 and GOV 3312.*
Recommended background: None

Anticipated Instructor: Professor Crystal Brown

Rationale:

The new number better represents the course content and provides a better, progressive pathway through the program. **Impact on Distribution Requirements:** This course will provide another option for students to fulfill the social science requirement.

Implementation year: AY23/24

Contact: Robert Krueger

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof. Elgert, Chair)
Re: Motion to add a Complex Systems Thinking concentration to the Policy Studies Major

Motion: On behalf of the Department of Social Science and Policy Studies, the Committee on Academic Operations recommends and I move that a concentration in Complex Systems Thinking be added to the Policy Studies major, as described below.

Description of the Proposed Concentration:

Concentration Guidelines:

1. Policy Studies Majors who are interested in Complex Systems Thinking can choose to complete a concentration in Complex Systems Thinking. To complete the concentration, students must complete 2 units of coursework from the following list of approved courses. One unit can be introductory courses, but the second unit must be advanced courses of 3000-level or above:
2. The 2 units of coursework should come from:
 - SD 1510 Introduction to System Dynamics Modeling
 - SD 2520 Modeling Economic and Social Systems
 - SD 2530 Advanced Topics in System Dynamics Modeling
 - SD 3550 System Dynamics Seminar
 - SS 1505 Games for Understanding Complexity
 - GOV 210X Engineering and Public Policy
 - ES 1500 Fundamentals of Systems Thinking
 - ES 2800 Environmental Impacts of Engineering Decisions
 - ES 3501 A Project-based Introduction to Systems Engineering
 - OIE 3460 Simulation Modeling and Analysis
 - OIE 3510 Stochastic Modeling
 - SD 550: Foundations of System Dynamics Foundations: Managing Complexity
3. All students completing this concentration will need to complete an MQP that relates to Complex Systems Thinking.

Impact on Distribution Requirements and Other Courses:

Policy Studies Requirements	Minimum Units
1. Foundation Courses (See note 1)	1 2/3 units
2. Mathematics (See note 2)	1 unit
3. Basic Sciences (See note 3)	1 unit
4. Core Courses	3 units
5. Concentration	2 units
6. MQP	1 unit
Total:	9 2/3 units

Notes:

1. Must include: ECON 1110, ECON 1120, GOV 1301, GOV 1303, and GOV 1310
2. Must include: two Calculus courses at the level of MA 1020 or higher, and 1 Statistics - MA 2610 or 2611 or 2612
3. Must include: one unit of basic science (CH, PH, BB, GE designations)

This concentration fits within the Distribution Requirements for the Policy Studies major.

Changes to Catalog: The concentration in Complex Systems Thinking will be added to the Policy Studies Major description.

Rationale:

We propose to add a concentration in Complex Systems Thinking to the Policy Studies Major. One goal of WPI's project-based educational program is to nurture the creation of "impactful leaders" -- i.e., people who put knowledge into action and make a positive difference in the world. In addition to enthusiasm, successful impactful leaders need to apply systems thinking skills to problems, as many of society's great challenges are transdisciplinary in nature and caused by the historical design of the world's socio-environmental-technical systems. Systems thinkers can devise impactful, transdisciplinary, policies that lead to new system designs and improved system behaviors. This concentration will help WPI create the next generation of impactful leaders.

Resource Needs: This concentration will not add any additional resources to the Technology, Policy, and Sustainability Program. All courses are already taught, and students interested in Policy Studies and Complex Systems Thinking are already taking these types of courses.

Implementation Date: AY 23/24

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof. Elgert, Chair)
Re: Motion to add an Economics concentration to the SSPS Policy Studies major

Motion: On behalf of the Department of Social Science and Policy Studies, the Committee on Academic Operations recommends and I move that a concentration in Economics be added to the Policy Studies major, as described below.

Description of the Proposed Concentration:

Concentration Guidelines:

1. Policy Studies Majors who are interested in the economic aspects of policy can choose to complete a concentration in Economics. To complete the concentration, students must complete 2 units of coursework from the approved list of courses in Economics.
2. All students completing this concentration will need to complete an MQP that relates to Economics.
3. All students completing this concentration will need to complete:
 - ECON 2110: Intermediate Microeconomics
 - ECON 2120: Intermediate Macroeconomics
4. The remaining 4/3 units of coursework should come from Economics and may include:
 - ECON 3117: Environmental Economics
 - ECON 3125: Development Economics
 - ECON 2135: Information Economics and Policy
 - ECON 2145: Behavioral Economics
 - ECON 2155: Experimental Economics
 - ECON 2910: Economics and Entrepreneurship

Impact on Distribution Requirements and Other Courses:

Policy Studies Requirements	Minimum Units
1. Foundation Courses (See note 1)	1 2/3 units
2. Mathematics (See note 2)	1 unit
3. Basic Sciences (See note 3)	1 unit
4. Core Courses	3 units
5. Concentration	2 units
6. MQP	1 unit
Total:	9 2/3 units

Notes:

1. Must include: ECON 1110, ECON 1120, GOV 1301, GOV 1303, and GOV 1310
2. Must include: two Calculus courses at the level of MA 1020 or higher, and 1 Statistics - MA 2610 or 2611 or 2612
3. Must include: one unit of basic science (CH, PH, BB, GE designations)

This concentration fits within the Distribution Requirements for the Policy Studies major.

Changes to Catalog: The concentration in Economics will be added to the Policy Studies Major description.

Rationale:

We propose to add a concentration in Economics to the Policy Studies Major. In recent years, we have seen an increase in the number of students interested in studying policy, broadly construed, through the lens of economics. This concentration builds on our faculty's deep expertise in economics and its relationship to policy studies, in the US and around the Globe. This concentration will help better meet the demand and needs of students interested in the relationship between policy studies and Economics.

Resource Needs: This concentration will not add any additional resources to the Technology, Policy, and Sustainability Program. All courses are already taught, and students interested in Policy Studies and Economics are already taking these types of courses.

Implementation Date: AY2023/2024

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof. Elgert, Chair)
Re: Motion to add a Development and the Environment concentration to the SSPS Policy Studies major

Motion: On behalf of the Department of Social Science and Policy Studies, the Committee on Academic Operations recommends and I move that a concentration in Development and the Environment be added to the Policy Studies major, as described below.

Description of the Proposed Concentration:

Concentration Guidelines:

1. Policy Studies Majors who are interested in the development and environmental aspects of policy can choose to complete a concentration in Development and the Environment. To complete the concentration, students must complete 2 units of coursework from the following list of approved courses. One unit can be introductory courses, but the second unit must be advanced courses of 3000-level or above:
 - DEV 1200 Development and Society
 - ENV 1100 Introduction to Environmental Studies
 - DEV 2200 Case studies in Development
 - ENV 2310 Environmental Justice Governance and Innovation
 - ENV 2600 Environmental Problems in the Developing World
 - GOV 2311 Environmental Policy and Law
 - GOV/ENV 2319 Global Environmental Politics
 - ECON 3117 Environmental Economics
 - ECON 3125 Development Economics
 - ECON 3100 Economics of Climate Change
 - ENV 3500 Women and the Environment
 - GOV 3312 International Environmental Policy
 - DEV 4400 Science and Technology for Development

2. All students completing this concentration will need to complete an MQP that relates to Development and the Environment.

Impact on Distribution Requirements and Other Courses:

Policy Studies Requirements	Minimum Units
1. Foundation Courses (See note 1)	1 2/3 units
2. Mathematics (See note 2)	1 unit
3. Basic Sciences (See note 3)	1 unit
4. Core Courses	3 units
5. Concentration	2 units
6. MQP	1 unit
Total:	9 2/3 units

Notes:

1. Must include: ECON 1110, ECON 1120, GOV 1301, GOV 1303, and GOV 1310
2. Must include: two Calculus courses at the level of MA 1020 or higher, and 1 Statistics - MA

2610 or 2611 or 2612

3. Must include: one unit of basic science (CH, PH, BB, GE designations)

Changes to Catalog: The concentration in Development and the Environment will be added to the Policy Studies major description.

This concentration fits within the Distribution Requirements for the Policy Studies Major.

Rationale:

We propose to add a concentration in Development and the Environment to the Policy Studies Major. In recent years, we have seen an increase in the number of students interested in studying policy, broadly construed. In addition, we have a number of faculty with expertise in Development and the Environment, as well as ongoing policy debates and issues in these areas. These faculty members teach a variety of related courses. This concentration will help better meet the demand and needs of students interested in the relationship between global policy and development and the environment. There will be a pronounced focus on international development, as opposed to just domestic concerns.

Resource Needs: This concentration will not add any additional resources to the Technology, Policy, and Sustainability Program. All courses are already taught, and students interested in Policy Studies and Development and the Environment are already taking these types of courses.

Implementation Date: AY 23/24

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof. Elgert, Chair)
Re: Motion to add a Science Technology Policy concentration to the Policy Studies major

Motion: On behalf of the Department of SSPS and the Technology Policy, the Committee on Academic Operations recommends and I move that a concentration in Science Technology Policy be added, as described below.

Description of the Proposed Concentration:

Concentration Guidelines:

1. Policy Studies Majors who are interested in policy as it relates to science and technology can choose to complete a concentration in Science Technology Policy. To complete the concentration, students must complete 2 units of coursework from the following list of approved courses. One unit can be introductory courses, but the second unit must be advanced courses of 3000-level or above:
2. The 2 units of coursework should come from:
 - BB 1002 Environmental Biology
 - BB 1045 Biodiversity
 - BCB 1003 Exploring Bioinformatics and Computational Biology
 - CS 3043 Social Implications of Information Processing
 - DEV 4400 Science and Technology for Development
 - GOV 210X Engineering and Public Policy
 - GOV 2302 Science, Technology and Policy
 - GOV 3313 Intellectual Property Law
 - GOV 3314 Cyberlaw and Policy
 - GOV 3500 Topics in Global Public Policy
 - RBE 3100 Social Implications of Robots
3. All students completing this concentration will need to complete an MQP that relates to Science and Technology.

Impact on Distribution Requirements and Other Courses:

Policy Studies Requirements	Minimum Units
1. Foundation Courses (See note 1)	1 2/3 units
2. Mathematics (See note 2)	1 unit
3. Basic Sciences (See note 3)	1 unit
4. Core Courses	3 units
5. Concentration	2 units
6. MQP	1 unit
Total:	9 2/3 units

Notes:

1. Must include: ECON 1110, ECON 1120, GOV 1301, GOV 1303, and GOV 1310
2. Must include: two Calculus courses at the level of MA 1020 or higher, and 1 Statistics - MA 2610 or 2611 or 2612
3. Must include: one unit of basic science (CH, PH, BB, GE designations)

Changes to Catalog: The concentration in Science Technology Policy will be added to the Policy Studies Major description.

This concentration fits within the Distribution Requirements for the Policy Studies Major.

Rationale: We propose to add a concentration in Science Technology Policy to the Policy Studies Major. In recent years, we have seen an increase in the number of students interested in studying policy, broadly construed. In addition, we have faculty with expertise in Science and Technology Policy who teach related courses. We are in the process of creating the Policy Studies major. This concentration will help better meet the demand and needs of students interested in the relationship between policy and science and technology.

Resource Needs: This concentration will not add any additional resources to the Technology Policy Sustainability Program. All courses are already taught, and students interested in Policy and Science and Technology are already taking these types of courses.

Implementation Date: AY 23/24

Date: December 19, 2022

To: WPI Faculty

From: Committee on Academic Operations (Prof. Elgert, Chair)

Re: Motion to remove ME 4810 Automotive Materials and Process Design

Motion: On behalf of the Department of Mechanical and Materials Engineering, the Committee on Academic Operation recommends and I move that ME 4810 Automotive Materials and process Design be removed from the undergraduate catalog.

Current Course Description:

ME 4810. AUTOMOTIVE MATERIALS AND PROCESS DESIGN Cat. II

This course focuses on materials used in the automotive industry. Students complete a term-long project that integrates design, materials selection and processing considerations. Activities include: problem definition, development of design specifications, development and analysis of alternative designs, conceptual designs and materials and process selection. Students will consider cost, and environmental impact of alternative material choices. Students will present their results in intermediate and final design reviews.

Recommended background: materials science (ES 2001), stress analysis (ES 2502), or equivalent. This course will be offered in 2021-22, and in alternating years thereafter.

Changes to catalog: this will be replaced by ME 48xx within ME concentrations and minors and as a Capstone in Mechanical design.

Rationale:

The only instructor for this course has left WPI. The course will be replaced by ME48XX Fundamentals of Vehicle Drivetrain Systems

Impact on Distribution Requirements and Other Courses:

Implementation Date: Implementation date for this action is the 2023-24 Academic year.

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof Elgert, Chair)
Re: Motion to remove ME 4815: Industrial Robotics

Motion: On behalf of the Department of Mechanical and Materials Engineering, the Committee on Academic Operation recommends and I move that ME 4815: Industrial Robotics be removed from the undergraduate catalog.

Current Course description:

ME 4815. INDUSTRIAL ROBOTICS. Cat. I

This course introduces students to robotics within manufacturing systems. Topics include: classification of robots, robot kinematics, motion generation and transmission, end effectors, motion accuracy, sensors, robot control and automation. This course is a combination of lecture, laboratory and project work, and utilizes industrial robots. Through the laboratory work, students will become familiar with robotic programming (using a robotic programming language VAL II) and the robotic teaching mode. The experimental component of the laboratory exercise measures the motion and positioning capabilities of robots as a function of several robotic variables and levels, and it includes the use of experimental design techniques and analysis of variance. Recommended background: manufacturing (ME 1800), kinematics (ME 3310), control (ES 3011), and computer programming.

Proposed changes to catalog: where it appears in a concentration or minor, this would remain only as RBE 4815. We are also going to CGSR to remove MFE 511 as a cross-listing.

Rationale:

This course is cross-listed with RBE 4815. Since RBE became its own department, MME has no faculty to teach it, and it is not needed to fulfill any direct requirements. Prepared students could still take the RBE course as an elective.

Impact on Distribution Requirements and Other Courses:

We have discussed this with RBE, and this will allow them freedom to alter the course to their own needs. This has been an MME elective; we have many 4000 courses remaining.

Implementation Date: AY 2023-24

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof. Elgert, Chair)
Re: Motion to add ME 4323: Fundamentals of Drivetrain Systems

Motion: On behalf of the Mechanical and Materials Engineering Department, the Committee on Academic Operations recommends and I move that ME 4323: Fundamentals of Vehicle Drivetrain Systems, as described below, be added.

Proposed Course/Catalog Description:

ME 4323. Fundamentals of Vehicle Drivetrain Systems. Cat I

This product-oriented course focuses on engineering fundamentals of ground vehicle drivetrain systems with application to automobiles, commercial and off-road vehicles as well as autonomous and electrically driven ground vehicles. The course focuses on “theory and practice” aspects of engineering design of vehicle transmissions, transfer cases, open and limited slip differentials, etc. A term project integrates design principles with materials selection to improve a drivetrain component for a given vehicle. Project steps include: problem definition and analysis, development of design specifications, development and analysis of alternative designs, conceptual design and material analysis, and a CAE design.

Recommended Background: materials science (ES 2001), stress analysis (ES 2502), dynamics (ES 2503) or equivalents.

Anticipated Instructors: Professors Vladimir Vantsevich, Lee Moradi

Rationale:

MME recently lost the only instructor for ME 4810 but had two new hires specializing in automotive. They have revamped the course, with significant changes, warranting a new course. This course will also lead to graduate activity in the field. We also need a replacement course to help satisfy mechanical system design, a program requirement.

Resource Needs: We are dropping an existing course with similar focus, so no additional needs.

Anticipated enrollment: 40-60 , likely one offering per year

Impact on Distribution Requirements and Other Courses: This will serve as one of the courses satisfying Mechanical Design capstone; these are ME 4320, a proposed 4324, and this course replaces ME 4810.

Implementation Date: Academic Year 2023-24

Contact: Prof. Brian Sivilonis (MME) bjs@wpi.edu

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof. Elgert, Chair)
Re: Motion to add ME 4324: Integrated Design of Mechanical Systems

Motion: On behalf of the Mechanical and Materials Engineering Department, the Committee on Academic Operations recommends and I move that ME 4324: Integrated Design of Mechanical Systems, as described below, be added.

Proposed Course Description:

ME 4324 Integrated Design of Mechanical System. Cat I

This course develops student capabilities to conduct the detailed design of mechanical components integrated into a complete mechanical system. Topics covered include kinematic syntheses and analysis and detailed design of mechanical components under dynamic loading using the fatigue-life method. These topics are developed through a guided design project. Computer software packages such as Mathcad and Linkages are used.

Recommended Background: ES 2001 (Introduction to Materials Science), ES 1310 (Introduction to Computer Aided Design), ES2501 (Introduction to Static Systems), ES2502 (Stress Analysis), and ES2503 (Introduction to Dynamic Systems).

Anticipated Instructors: Any of the ME mechanical design faculty. It is anticipated that the initial offering will be in lieu of one section of ME 4320 (now offered 4 times per year).

Rationale:

The department changed its distribution requirements to require a 4000 level design course in both mechanical and thermofluid design. The mechanical design courses currently include ME 4320 Advanced Engineering Design, which serves the mechanical concentration or students with a full complement of design courses, ME 4322 Mechatronics and ME 4810 Automotive Materials and Process Design. The need is for a rigorous design course at the system level, but based on introductory courses. We also must process 240 student majors per year through one of those courses.

Resource Needs: The course will likely be offered twice a year requiring an adjustment from other courses.

Anticipated enrollment: Will cap student enrollment at 40 the first year and then 2 sections of 50, as needed. It is estimated we need to offer this to 75-100 students at current enrollments.

Impact on Distribution Requirements and Other Courses. This would serve as a 4000 level course that integrates Mechanical Design. It would not be included in the Design Concentration.

Implementation Date: Academic Year 2023-2024

Contact: Prof. Brian Savilonis (MME) bjs@wpi.edu.

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof. Elgert, Chair)
Re: Motion to add EN 1259: Introduction to Contemporary Chicana/o Literature

Motion: On behalf of the Humanities and Arts Department, the Committee on Academic Operation recommends and I move that EN 1259: Introduction to Contemporary Chicana/o Literature, as described below, be added.

Proposed Course Description:

EN1259: Introduction to Contemporary Chicana/o Literature. Cat. II

This course examines literary works of multiple genres produced by Chicana/o writers from WWII to today, with particular emphasis on the Mexican American Civil Rights Movement of the 1960s and the contemporary relevance of issues such as land and education rights for immigrants. Writers studied may include the novelist Sandra Cisneros, the cultural critic Gloria Anzaldúa, the memoirist JP Brammer, and the short-story writer Silvia Moreno-Garcia. This course will emphasize civic involvement and will offer students the opportunity to engage with political activists and other public groups involved with immigration in America. Students cannot receive credit for both this class (EN 1259) and EN125x, Intro to Contemporary Chicana/o Literature. This course will be first offered in 2024-2025 and alternate years thereafter.

Recommended Background: None, though introductory coursework in English (e.g. EN1251 Introduction to Literature), History (e.g. HI1312 Introduction to American Social History), or SP courses that stress literature and culture could be useful preparation.

Note: The proposed course number has not been used previously.

Rationale:

WPI has increasingly emphasized the need to address social justice issues, through recent speakers like environmental activist Lois Gibbs and inaugural events like last October's first summit on Social Justice in STEM at WPI, or the recent speakers and artists invited through the burgeoning Latin American Studies initiative. This course would dovetail with campus-wide efforts by getting an HUA course on the books that looks at a particular social justice effort (the Mexican American Civil Rights Movement) through the lens of literature. Also, while WPI's English offerings include an Introduction to African American Literature and Culture course (along with an upper-level US Latino Literature and Culture course taught in English), no comparable introductory-level English course exists for Latino American literature. Such a class could help lend institutional recognition to shifting US demographics: According to the Pew Research Center, the US Hispanic/Latino population has been the main driver of US population growth over the last twenty years, and the Hispanic/Latino population of WPI's entering classes is also rising, with 9.9% of the 2017 freshman class identifying as Hispanic/Latino (up from 4% in 2007). At 63.3% of the US Hispanic population, Hispanics of Mexican descent represent the biggest proportion of any origin group in the United States.

Course type: lecture / discussion

Intended audience: Students pursuing their HUA breadth or depth requirement in English; Modern Language (Arabic, Chinese, German, Spanish) minors and majors; History; English and International Studies minors and majors

Anticipated Instructor: Prof. Joe Aguilar, with Prof. John Galante, Prof. Aarti Smith Madan, Prof. Kate McIntyre, and Prof. Angel Rivera as capable alternates

Resource Requirements:

- a) What currently available resources will be needed: A classroom.
- b) What new resources will be needed. No new resources will be required.

Implementation Date: AY 2023-2024

Contact: Prof. Esther Boucher-Yip, Associate Head of HUA Department

Appendix
Experimental Version of the Course
Offered B-20 and A-22

Experimental Course Description:

EN125x, Intro to Contemporary Chicana/o Literature

This course examines literary works of multiple genres produced by Chicana/o writers from WWII to today, with particular emphasis on the Mexican American Civil Rights Movement of the 1960s and the contemporary relevance of issues such as land and education rights for immigrants. Writers studied may include the novelist Sandra Cisneros, the cultural critic Gloria Anzaldúa, the musician Lalo Guerrero, the memoirist Reyna Grande, and the short-story writer Kali Fajardo-Anstine. This course will emphasize civic involvement and will offer students the opportunity to engage with political activists and other public groups involved with immigration in America.

Recommended Background: None, though introductory coursework in English (e.g. EN1251 Introduction to Literature), History (e.g. HI1312 Introduction to American Social History), or SP courses that stress literature and culture could be useful preparation.

Instructor: Prof. Joe Aguilar

Assessment:**Relevant data from A2022 course evals**

Question 1: 4.8
Question 2: 4.9
Question 7: 4.1
Question 19: 2.3

Relevant data from B2020 course evals

Question 1: 4.6
Question 2: 4.8
Question 7: 4.4
Question 19: 2.4

Instructor feedback and reflections from experimental offerings:

The course especially addressed the following HUA objectives:

- to introduce students to the breadth, diversity, and creativity of human experience as expressed in the humanities and arts; ^{[[1]]}_{[[SEP]]}
- to develop students' ability to think critically and independently about the world; ^{[[1]]}_{[[SEP]]}
- to enhance students' ability to communicate effectively with others in a spirit of openness and cooperation; ^{[[1]]}_{[[SEP]]}
- to enrich students' understanding of themselves;

Date: December 19, 2022

To: WPI Faculty

From: Committee on Academic Operations (Prof. Elgert, Chair)

Re: Motion to remove CE 4020: Resilient Infrastructure for a Changing Climate

Motion: On behalf of the Department of Civil, Environmental, and Architectural Engineering, the committee on Academic Operations recommends and I move that CE 4020: Resilient Infrastructure for a Changing Climate be removed.

Current Course Description:

CE 4020: Resilient Infrastructure for a Changing Climate. Cat II

This course is intended to provide students with understanding, knowledge, skills, and tools to evaluate the risk to, and resilience of, infrastructure components to climate change-related and extreme weather events, and to conduct further study and research on this subject. Methods to consider impact of climate change and extreme weather events on the infrastructure, understand different Intergovernmental Panel on Climate Change (IPCC) scenarios, utilize downscaled data for design of infrastructure, estimation of vulnerability, criticality, consequence, risk and resiliency, in both qualitative and quantitative ways. Available adaptation frameworks and tools/software for increasing resiliency will be presented. This course will be offered in 2021-22, and in alternating years thereafter. Units: 1/3 Category: Category II Recommended Background: Basic knowledge of applied statistics (MA 2611 or similar), probability for applications (MA 2621 or similar), statics (CE 2000 or similar), structural engineering (CE 3010 or similar), and materials of construction (CE 3026 or similar)

Rationale:

This course was offered twice under an experimental number (402X) and once under the catalog number (4020). The populations were very low in all three offerings as follows: C17 – 2, C18 – 3, and A21 – 5. The faculty member who taught the class is also no longer at WPI.

Impact on Distribution Requirements and Other Courses:

- This course removal will not have any significant impact on students as the course had little interest from students, and does not fulfill any distribution requirements in the Civil Engineering B.S. degree.
- This course was a category II course. There is no replacement course. There are no changes needed to distribution requirements in the undergraduate catalog as this course did not fulfill any distribution requirements. This course does not have any affect on ABET accreditation.
- It is also noted that the CEAE department added several new courses as part of the graduate Community Climate Adaptation degree, and therefore students have options for climate-related classes through the department.

Implementation Date: Academic Year 2023-2024

Contact: Prof. Dudle (CEAE), jddudle@wpi.edu.

Date: December 19, 2022
To: WPI Faculty
From: Committee on Academic Operations (Prof. Elgert, Chair)
Re: Motion to modify distribution requirements for the Biomedical Engineering major

Motion: On behalf of the Biomedical Engineering Department, the Committee on Academic Operation recommends and I move that the Program Distribution Requirements for the Biomedical Engineering Major be modified as described below.

Description of the Proposed Changes:

Proposed Distribution Requirements: (with changes highlighted in yellow)

Program Distribution Requirements for the Biomedical Engineering Major

The normal period of residency at WPI is 16 terms. In addition to the WPI requirements applicable to all students (see page 7), a biomedical engineer needs a solid background in mathematics, physical and life sciences. The distribution requirements are satisfied as follows:

BIOMEDICAL ENGINEERING	MINIMUM UNITS
1. Mathematics (See Note 1)	6/3
2. Basic Science (See Note 2)	6/3
3. Supplemental Science (See Note 3)	1/3
4. Computer Science (Note 4)	1/3
5. Biomedical Engineering and Engineering (See Note 5,6,7,8,9)	14/3
6. MQP (See Note 10)	3/3

NOTES

1. Mathematics must include differential and integral calculus, differential equations, and statistics.
2. 2/3 units from each of the following areas: BB, CH and PH. At least 1/3 unit of BB coursework must be 2000+ level.
3. 1/3 unit from BB, CH, CS, MA, PH or FY courses that satisfy BB, CH, CS, MA, or PH.
4. 1/3 unit in basic computer programming (BME 1004, or equivalent).
5. 14/3 units of engineering coursework as specified in the WPI Catalog "Courses Qualifying for Engineering Department Areas" with the following distribution:
 - a. 3/3 units of 2000+ level in engineering.
 - b. 2/3 units of 3000+ level in engineering.
 - c. 9/3 units in Biomedical Engineering which must include the following:
 - i. 4/3 units of BME coursework at the 2000+ level
 - ii. 2/3 units of BME laboratories at the 3000+ level (four 1/6-unit labs)
 - iii. 1/3 unit of BME design (BME 3300 or equivalent)
 - iv. 1/3 unit of BME coursework at the 4000 level
 - v. 1/3 unit of BME coursework at the 4000+ level
6. As part of the 14/3 units of engineering coursework, a subset of the courses must fulfill the following requirements:
 - a. For 5A-C, you must take at least one course in each of the BME core competencies (see "Biomedical Engineering Program Chart" for courses that can be used to fulfill the requirements):
 - i. 1/3 unit of biomechanics or biofluids at the 2000+ level
 - ii. 1/3 unit of biomaterials or tissue engineering at the 2000+ level
 - iii. 1/3 unit of biosensors or bioinstrumentation at the 2000+ level
 - iv. 1/3 unit of experimental measurement and data analysis at the 2000+ level
 - b. For 5C, a minimum of 1/6 unit must fulfill the living systems requirement (BME3111, BME 3012, BME 3503, BME 3813 or other courses specified in the Biomedical Engineering Program Chart)
7. No more than 1/3 unit of the 14/3 units of engineering coursework may be independent study (ISU) with a syllabus submitted to the Chair of the BME Undergraduate Curriculum Committee and a final report submitted to the ISU Instructor.
8. MQP credits cannot be used to satisfy the 14/3 units of engineering coursework
9. A maximum of 1/3 unit of coursework at the 500 level or 5000 level can count towards the Biomedical Engineering and Engineering requirement
10. Must include a minimum of 1/3 unit of Capstone Design Experience. Each Biomedical Engineering student must complete a Capstone Design Experience requirement. The Capstone Design Experience is partially or fully accomplished by completing the Major Qualifying Project which integrates the past coursework and involves significant engineering design. At the time of registration for the MQP, the project advisor will determine whether the MQP will meet the full 1/3 unit of Capstone Design Experience requirement or not. If not, the advisor will identify an additional 1/6 unit of coursework in the area of engineering design (BME 4300 or equivalent) to be taken in order to meet the ABET Capstone Design requirement.

Current Distribution Requirements:

(Note 9 in the current distribution requirements is Note 10 in the proposed distribution requirements because of the above changes.)

Program Distribution Requirements for the Biomedical Engineering Major

The normal period of residency at WPI is 16 terms. In addition to the WPI requirements applicable to all students (see page 7), a biomedical engineer needs a solid background in mathematics, physical and life sciences. The distribution requirements are satisfied as follows:

BIOMEDICAL ENGINEERING	MINIMUM UNITS
1. Mathematics (See Note 1)	6/3
2. Basic Science (See Note 2)	6/3
3. Supplemental Science (See Note 3)	1/3
4. Computer Science (Note 4)	1/3
5. Biomedical Engineering and Engineering (See Note 5,6,7,8)	14/3
6. MQP (See Note 9)	3/3

NOTES

1. Mathematics must include differential and integral calculus, differential equations, and statistics.
2. 2/3 units from each of the following areas: BB, CH and PH. At least 1/3 unit of BB coursework must be 2000+ level.
3. 1/3 unit from BB, CH, CS, MA, PH or FY courses that satisfy BB, CH, CS, MA, or PH.
4. 1/3 unit in basic computer programming (BME 1004, or equivalent).
5. 14/3 units of engineering coursework as specified in the WPI Catalog "Courses Qualifying for Engineering Department Areas" with the following distribution:
 - A. 3/3 units of 2000+ level in engineering.
 - B. 2/3 units of 3000+ level in engineering.
 - C. 9/3 units in Biomedical Engineering which must include the following:
 - i. 4/3 units of BME coursework at the 2000+ level
 - ii. 2/3 units of BME laboratories at the 3000+ level (four 1/6-unit labs)
 - iii. 1/3 unit of BME design (BME 3300 or equivalent)
 - iv. 1/3 unit of BME coursework at the 4000 level
 - v. 1/3 unit of BME coursework at the +4000 level
6. As part of the 14/3 units of engineering coursework, a subset of the courses must fulfill the following requirements:
 - A. For 5A-C, you must take at least one course in each of the BME core competencies (see "Biomedical Engineering Program Chart" for courses that can be used to fulfill the requirements):
 - i. 1/3 unit of biomechanics or biofluids at the 2000+ level
 - ii. 1/3 unit of biomaterials or tissue engineering at the 2000+ level
 - iii. 1/3 unit of biosensors or bioinstrumentation at the 2000+ level
 - iv. 1/3 unit of experimental measurement and data analysis at the 2000+ level
 - B. For 5C, a minimum of 1/6 unit must fulfill the living systems requirement (BME3111, BME 3012, BME 3503, BME 3813 or other courses specified in the Biomedical Engineering Program Chart)
7. No more than 1/3 unit of the 14/3 units of engineering coursework may be independent study (ISU) with a syllabus submitted to the Chair of the BME Undergraduate Curriculum Committee and a final report submitted to the ISU Instructor.
8. MQP credits cannot be used to satisfy the 14/3 units of engineering coursework
9. Must include a minimum of 1/3 unit of Capstone Design Experience. Each Biomedical Engineering student must complete a Capstone Design Experience requirement. The Capstone Design Experience is partially or fully accomplished by completing the Major Qualifying Project which integrates the past coursework and involves significant engineering design. At the time of registration for the MQP, the project advisor will determine whether the MQP will meet the full 1/3 unit of Capstone Design Experience requirement or not. If not, the advisor will identify an additional 1/6 unit of coursework in the area of engineering design (BME 4300 or equivalent) to be taken in order to meet the ABET Capstone Design requirement.

Rationale:

Addition of Note 9: Biomedical Engineering students require solid competency in foundation courses before taking advanced level courses. With the organization of the existing course requirements, students can take up to seven (7), 1/3 unit courses at the 500 level towards their Biomedical Engineering and Engineering requirement, which is half of their engineering coursework. This was never the intention of the BME department. The one, BME 4000+ level requirement was built in to allow one (1) 1/3 unit of BME coursework at the 500 level. In addition to not acquiring sufficient foundation knowledge, by taking more than one (1) 1/3 unit course at the 500 level, the BME department runs the risk of not guaranteeing that each student meets the

ABET program outcomes to prepare graduates to enter the professional practice of biomedical engineering.

Implementation Date: Academic Year 2023-24
