

WORCESTER POLYTECHNIC INSTITUTE
November 7, 2019

To: The WPI Faculty

From: Tanja Dominko, Secretary of the Faculty

The second Faculty meeting of the 2019-2020 academic year will be held on **Thursday, November 7th, 2019 at 3:15 pm in Olin Hall 107.**

1. Call to Order T. Dominko
 - Approval of the Agenda
 - Approval of the Consent Agenda and the Minutes from 10-3--2019
2. Announcements T. Dominko
3. President's Report
4. ~~Provost's Report~~ ~~W. Soboyejo~~
5. Reports
 - Task Force on the status of Non-Tenure Track Faculty at WPI
**Transforming the Growth of the Non-Tenure Track Faculty
Into an Opportunity for WPI as an Educational Leader** D. Heilman/
M. Richman
 - Update on **ADVANCE** grant initiatives/activities J. Skorinko
6. Committee Business
 - Committee on Governance and Committee on Information Technology Policy
Motion to adopt Research Data Retention and Maintenance Policy C. Shue
 - Committee on Governance and Committee on Information Technology Policy
**Motion to adopt Academic and Research Computing User
Account Policy** C. Shue
7. New Business
8. Old Business
9. Closing Announcements
10. Adjournment and Reception at the Quorum

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WORCESTER POLYTECHNIC INSTITUTE
Faculty Meeting Minutes
October 3, 2019

Summary:

1. Call to Order
2. Announcements
3. President's Remarks
4. Provost's Remarks
5. Memorial Resolutions: Professor William D. Hobey; Professor Frederick L. Hart
6. Reports: WPI Online – Historical Context and Current State
7. Adjournment

Detail:

1. Call to Order

The second Faculty meeting of the 2019-2020 academic year was called to order in Olin Hall 107 by **Prof. Dominko (BBT)**. She reminded everyone that the meeting is being recorded for the purpose of accuracy in taking minutes. The amended agenda and consent agenda (including the minutes from the September 13, 2019 Faculty meeting) were approved.

2. Announcements

Prof. Dominko called on Senior Vice President Tichenor, who introduced Tiffany Butler, Director of Multicultural Affairs, and Rajiv Malhotra, Assistant Vice President of Institutional Research, both in the division of Enrollment Management.

3. President's Report

President Leshin spoke about her recent travels to Beijing, Thailand, Indonesia, and Japan. While in Beijing, President Leshin not only attended the Annual Summit of the Center of Global Safety, but also worked with the chairwoman of Tsinghua University to facilitate additional collaboration. President Leshin told a brief story about the history of this relationship with Tsinghua University. While traveling, she also met with alumni and partners at Chulalongkorn University in Thailand as well as with alumni in Indonesia and Japan. President Leshin visited the new IQP center in Japan and visited with the students and partners. President Leshin closed with a brief statement about the recent appointment of the Provost.

4. Provost's Report

Provost Soboyejo opened by thanking the WPI community for their support. Provost Soboyejo explained that he has used his time here as an opportunity to learn not only about the university, but also about the need to listen to others, and the importance of knowing how to let go. Provost Soboyejo indicated that one of his goals for the future is to build on the synergy of collaboration and the opportunities that can come from these collaborations. He spoke about addressing challenges that were presented by the Global School highlighted the importance of collaboration between all members of WPI. Provost Soboyejo stressed the future goals of improving the online experience for WPI students, as well as distinguishing Graduate Masters of Professionals from Graduate Masters of Research. Currently, according to Provost Soboyejo, WPI is driving the future frontiers of both STEM education and project based learning. He concluded by expressing

his excitement about continuing to work with everyone at WPI to bring the school from good to great.

5. Reading of Memorial Resolutions

Prof. Wobbe (CBC) read a memorial resolution for Professor William D. Hobey, who passed away on December 12, 2017. (See **Addendum #1** attached to these minutes.)

The resolution passed.

Prof. El-Korchi (CEE) read a memorial resolution for Professor Frederick L. Hart, who passed away on December 20, 2018. (See **Addendum #2** attached to these minutes.)

The resolution passed.

A moment of silence was observed in Prof. Hobey's and Prof. Hart's honor.

6. Reports

WPI Online – Historical Context and Current State

Assistant Vice President Rachel LeBlanc (Academic & Corporate Engagement), presented a report on WPI Online – Historical Context and Current State (See **Addendum #3** attached to these minutes). She summarized the role of CPE in this process as well as a brief history of this department. This report summarize the current state of online education as well as the process that brought it to where it is today.

Professor John Sullivan (Mechanical Engineering) also contributed to the presentation by describing the purpose of the Online Steering Committee as well as CPE. He described that they are there to support the online community and to work with CAP, not to create academic policies.

Prof. Duffy (BBT) questioned if the data collected from professors regarding the connection with students was consistent among other universities. Rachel LeBlanc answered that it was consistent.

Prof. Ryder (BBT) asked Rachel LeBlanc about her opinion regarding the direction of WPI Online. Rachel LeBlanc shared that she thinks the enrollment will continue as previously seen, but more programs could be created to sponsor additional growth. This means that scaling WPI Online is possible in the near future.

Prof. Demetry (ME) asked about the external landscape of WPI Online. She has seen a growing demand for stackable credentials and non-degree online programs, which caused her to question if WPI can grow in that area. Rachel LeBlanc responded by saying that WPI Online currently does not have the infrastructure to do this, but it does have the content.

Prof. Fischer (ME) asked about the students taking the online classes. The question was based around the reason people are taking classes online instead of coming to campus from a recruiting perspective. Rachel responded indicating that most of the students taking online classes cannot come to campus due to a variety of reasons.

Prof. Oates (BBT) asked about the validity of the data regarding connection with students. She questioned if the student feels any differently about the faculty. Rachel answered that the students are happy with the faculty, but they don't care as much as they would in a normal class.

A faculty member asked if there are future plans to expand the types of classes online since currently they are focused on STEM and business. Rachel answered that this is part of Provost Soboyejo's vision and it will be further explored.

A faculty member asked if the training program was only for the courses that are solely online, or if it can be used for blended courses as well. Rachel responded by stating that it is for the faculty.

Prof. Sullivan also added that it benefits faculty because it shows the difference between teaching online courses and those offered in person. The program can benefit all faculty members.

Prof. Fehribach (MA) asked about the percentage of students that attend WPI on campus, but have decided to take an online course. Rachel replied by saying that the majority of the students that are taking online classes are working professionals, but she wouldn't know the actual percentage of full time students taking classes online.

President Leshin asked about the number of undergraduate students involved in the online programs. She was wondering if the strategy going forward should incorporate more online learning since it will be such a large part of their learning once they graduate. President Leshin also clarified that the summer statistics are not included in the data presented. Rachel confirmed that the summer courses are not included in the data presented.

A faculty member had experience teaching an online class where they tried to get everyone together in a physical classroom, but discovered all the students were in different areas of the world. He was surprised at the number of students that not only were willing to take the summer to advance, but also chose to stay at WPI to do so.

A faculty member has seen students utilize the online programs in order to finish their degrees after getting a job. She looks at the program as a benefit to students on campus since it supports internship programs.

Prof. Gericke (CBC) asked about the structure of online courses compared to those offered on campus. He was wondering if the online courses are project based and offered opportunities to build soft skills. Prof. Gericke wanted to know if the online programs are at a point that they can be differentiated from those offered by other schools. Rachel indicated that it depends on the program, but that some have incorporated project work. The norm is to incorporate more projects, but this could be difficult due to students in different time zones.

Prof. Fischer (ME) mentioned that all online robotics courses have projects and he has seen it as being beneficial.

President Leshin commented that the school can be better differentiated by incorporating this project component.

7. Adjournment

Meeting was adjourned at 4:35pm by **Prof. Dominko**.

Respectfully submitted,

Tanja Dominko
Secretary of the Faculty

Addenda on file with these minutes:

1. Addendum #1 Memorial Resolution, Professor William D. Hobey – October 3, 2019
2. Addendum #2 Memorial Resolution, Professor Frederick L. Hart – October 3, 2019
3. Addendum #3 Report – WPI Online – Historical Context and Current State – October 3, 2019

Appendix: Consent Agenda Motions

CONSENT AGENDA MOTIONS November 7, 2019

- CAO** Change MU 2631
- CAO** Change MU 2638
- CAO** Change MU 2632
- CAO** Add OIE 2081
- CAO** Change BUS 2080
- CAO** Add AR 2750
- CAO** Add EN 3225
- CAO** Change HI 2910
- CAO** Remove HI 2910
- CAO** Add HI 3344
- CAO** Remove HI 3342
- CAO** Add HU 2258
- CAO** Add INTL 2110
- CAO** Add ISE 2810
- CAO** Add ISE 3800
- CAO** Change EN2222
- CAO** Change MU 2631
- CAO** Change MU 2632
- CAO** Change MU 2638
- CAO** Change PY/RE 2731
- CAO** Add MA3212 requirements for the B.S. in Actuarial Mathematics
- CAO** Add ME3902
- CAO** Change distribution requirements for Mechanical Engineering Major
- CAO** Change distribution requirements for Psychological Science Major

- CGSR** Modify IMGD 5100
- CGSR** Add IMGD 5500
- CGSR** Modify IMGD MS Degree Requirements

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to change the title for MU 2631 approved by Department of Humanities & Arts on 09/13/2019.

Motion: The Committee on Academic Operation recommends and I move, that the title and description for Men’s Glee Club – MU 2631 be changed as described below.

Existing title, description and course offering schedule:

Men’s Glee Club

Cat. I The Glee Club is the men's choral ensemble and the oldest student organization on campus. Glee Club performs many styles and periods of the vast repertoire of music for men's ensembles. Several times each year the Glee Club and Alden Voices (Women's Chorale) join forces as the WPI Festival Chorus to perform major works of the repertoire. The Glee Club tours Europe and also performs on tour. Rehearsals are held weekly. Prior singing or music experience is encouraged but not required. Open to all men.

Proposed title, description, and course offering:

Glee Club

Cat. I The Glee Club is one of WPI’s choral ensembles and the oldest student organization on campus. Glee Club performs many styles and periods of the vast repertoire of music featuring tenor and bass voices. Several times each year the Glee Club and Alden Voices (soprano and alto voices) join forces as the WPI Festival Chorus to perform major works of the repertoire. The Glee Club regularly performs on campus, throughout the Worcester area, and takes international and domestic tours. Rehearsals are held weekly. No audition is required. The course is open to all who are interested and sing in the tenor and bass range.

Explanation of Motion: This proposal is to drop the gender term “Men’s” in the title and remove all gender terms throughout the course description.

No other changes will be made to this course, such as content or course offering, beyond the title and description. Therefore, it is not necessary to propose dropping this course and adding a new one.

Rationale: Men’s Glee Club is a choir for anyone who feels comfortable singing with-in the tenor and bass vocal range, welcoming all regardless of gender. The motion to drop the term “Men’s” in the title and description is to represent the inclusive nature of the course.

Impacts on students: This change will provide access and acceptance to students who may have previously felt excluded.

Resource Needs:

Please summarize basic resources needed to deliver this course, including the following:

- No new resources are needed.

Implementation Date: 2020-21 Academic year

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to change the title for MU 2638 approved by Department of Humanities & Arts on 09/13/2019.

Motion: The Committee on Academic Operation recommends and I move, that the title and description for Vocal Performance Lab – MU 2638 be changed as described below.

Existing title, description and course offering schedule:

Vocal Performance Lab

Cat. I The Vocal Performance Lab is a performance practice oriented chamber vocal ensemble. This ensemble explores specific stylistic techniques as pertains to the music of the Renaissance, Baroque, twentieth century, jazz, and extended vocal techniques (electronic, digital and experimental). The ensemble meets weekly. Students are expected to be of the highest vocal caliber and should possess advanced sight-reading techniques. Open to both men and women. Permission of the instructor is necessary to register.

Proposed title, description, and course offering:

Chamber Choir

Cat. I The Chamber Choir is WPI's smaller, audition-based, choral ensemble. This ensemble explores specific stylistic techniques as pertains to the music of the Renaissance, Baroque, twentieth century, jazz, and extended vocal techniques (electronic, digital and experimental). The ensemble meets weekly. Students are expected to be of the highest vocal caliber and should possess advanced sight-reading techniques. Open to all who are interested. Permission of the instructor is necessary to register.

Explanation of Motion: This proposal is to change the title of "Vocal Performance Lab" to "Chamber Choir," and make minor updates to the course description.

No other changes will be made to this course, such as the course offering, beyond those listed above. Therefore, it is not necessary to propose dropping this course and adding a new one.

Rationale: The title "Vocal Performance Lab" misrepresents the content of the course, since the course is a choir and not a lab. The title has additionally caused confusion amongst students with the "Vocal Performance Practicum – HU 3910, D11" and other performance practicums on campus. The title change to "Chamber Choir" will alleviate this confusion and provide a title that properly relates to the content of the course.

Impacts on students: This change will provide clarity for students interested in the different music offerings at WPI.

Resource Needs:

Please summarize basic resources needed to deliver this course, including the following:

- No new resources are needed.

Implementation Date: 2020-21 Academic year

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to change the title for MU 2632 approved by Department of Humanities & Arts on 09/13/2019.

Motion: The Committee on Academic Operation recommends and I move, that the title and description for Alden Voices – MU 2632 be changed as described below.

Existing title, description and course offering schedule:

Alden Voices

Cat. I Alden Voices is the women's choral ensemble. Alden Voices performs many styles and periods of the vast repertoire of music for women's ensembles. Several times each year Alden Voices and the Men's Glee Club join forces as the WPI Festival Chorus to perform major works of the repertoire. Alden Voices performs on tour as well as performing on campus. Rehearsals are held weekly. Prior singing or music experience is encouraged but not required. Open to all women.

Proposed title, description, and course offering:

Alden Voices

Cat. I Alden Voices is one of WPI's choral ensembles and also functions as a student organization on campus. Alden Voices performs many styles and periods of the vast repertoire of music featuring soprano and alto voices. Several times each year the Alden Voices and the Glee Club (tenor and bass voices) join forces as the WPI Festival Chorus to perform major works of the repertoire. Alden Voices regularly performs on campus, throughout the Worcester area, and takes international and domestic tours. Rehearsals are held weekly. No audition is required. The course is open to all who are interested and sing in the soprano and alto range.

Explanation of Motion: This proposal is to remove all gender terms throughout the course description.

No other changes will be made to this course, such as content or course offering, beyond the course description. Therefore, it is not necessary to propose dropping this course and adding a new one.

Rationale: Alden Voices is a choir for anyone who feels comfortable singing with-in the soprano and alto vocal range, welcoming all regardless of gender. The motion to drop the use of female gender in the description is to represent the inclusive nature of the course.

Impacts on students: This change will provide access and acceptance to students who may have previously felt excluded.

Resource Needs:

Please summarize basic resources needed to deliver this course, including the following:

- No new resources are needed.

Implementation Date: 2020-21 Academic year

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to add OIE 2081 *Introduction to Prescriptive Analytics*, approved by the Foisie Business School on October 2, 2019

Motion: The Committee on Academic Operation (CAO) recommends and I move, that OIE 2081 *Introduction to Prescriptive Analytics* as described below, be added to the undergraduate catalog.

Course/Catalog Description:

OIE 2081: *Introduction to Prescriptive Analytics* Cat. I

This course provides an introduction to prescriptive analytics, which involves the application of mathematical and computational sciences, such as linear optimization and simulation, to recommend optimal courses of action for decision making. The course will feature decision problems arising from a variety of contexts such as capacity management, finance, healthcare, humanitarian relief, inventory management, production planning, staffing, and supply chain. The emphasis of the course is the application of such techniques to recommend a best strategy or course of action for the particular context.

Recommended background: Basic statistics, equivalent to that in MA 2611 and MA 2612.

Anticipated Instructor: Current Operations and Industrial Engineering faculty who are teaching BUS 2080.

Expected enrollment: 30-40

Rationale: We currently offer BUS 2080 4-5 times per academic year to a variety of majors. We are introducing OIE 2081 specifically tailored to IE majors, therefore spitting the 4-5 sections of BUS 2080 into 3 sections of BUS 2080 and 2 sections of OIE 2081. To better serve IE students, the proposed OIE 2081 *Introduction to Prescriptive Analytics* will address the aspects of analytics dealing with developing optimal recommendations given data around some decision-making environment. This split also allows BUS 2080 to better serve the needs of BUS, MGE, and MIS students.

Implementation Date: This course will be offered AY 20-21. The course is expected to be offered twice a year.

Resource Needs: No new resources are required. We will use the faculty that are already teaching the BUS 2080 course. This course also requires a small amount of ATC support to ensure appropriate (free) optimization software is installed and available for students.

Impact on Distribution Requirements and Other Courses: This course is a required course for IE students that will replace BUS2080 in all requirements for the IE major and the minor. OIE 2081 is also open to any students across campus who want to take it. Specifically, we will add OIE 2081 as an option for data science students, in addition to BUS 2080 in the data science major and minor. This will provide more flexibility for data science students.

Students may earn credit for both BUS 2080 and OIE 2081 because the courses cover different topics.

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to change course description and recommended background for BUS 2080 *Data Analysis for Decision Making*, approved by the Foisie Business School on October 2, 2019

Motion: The Committee on Academic Operations (CAO) recommends and I move, that BUS 2080 Data Analysis for Decision Making, course description be changed as described below, and be added to the undergraduate catalog.

Existing title, description and course offering:

BUS 2080: *Data Analysis for Decision Making* Cat. I

This course explores the use of data mining and analytics to create business intelligence and use it for improving internal operations and understanding customers and supply chains. It provides an introduction to the concepts and methods of data analysis for decision-making. Students will learn a comprehensive set of spreadsheet skills and tools, including how to design, build, test, and use spreadsheets for business analyses. Students will also develop an understanding of the uses of business data analyses for decision-making, forecasting, and obtaining and maintaining a competitive advantage. Industrial Engineering majors may not receive credit for both BUS 2080 and MA 2210.

Proposed title, description, and course offering:

BUS 2080: *Data Analysis for Decision Making* Cat. I

This course builds upon students' understanding of statistics and introduces them to the concepts and methods for analyzing data to support business decision-making. Students will explore data sets using data mining and analytics techniques to create business intelligence, to be used for understanding and improving customers' experiences, supply chain operations, product management, etc. During the course, students will develop an understanding of the uses of business data analytics and associated models for business decision-making, forecasting, and obtaining and maintaining a competitive advantage. Students will learn a comprehensive set of advanced spreadsheet skills, including how to design, build, test, and use spreadsheets for analyzing business decisions.

Recommended background: Basic statistics, equivalent to that in MA 2611 and MA 2612.

Anticipated Instructor: Current Operations and Industrial Engineering faculty who are teaching BUS 2080.

Expected enrollment: 30-40

Rationale: We are currently offering BUS 2080 4-5 times per academic year to a variety of majors. We are splitting the 4-5 sections of BUS 2080 into 3 sections of BUS 2080 and 2 sections of OIE 2081, a new course specifically tailored to IE majors. Currently, BUS 2080 attempts to include topics for IE,

BUS, MGE, and MIS majors, but the topics focused on optimization that are needed for IE students are of less interest and value to the other majors. The large enrollments now enable BUS 2080 to be split into two courses, appropriately addressing the two student audiences.

The addition of basic statistics as recommended background more accurately reflects the course. We encourage students to take this course after they have completed a statistics course. Unfortunately, in previous years, students taking it before taking statistics had difficulties, resulting in instructors spending time teaching basic statistics, which disadvantaged those students who had taken statistics already.

Implementation Date: This course, in its revised form, will be offered AY 20-21. The course is expected to be offered three times a year.

Resource Needs: No new resources are required. We will use the faculty that are already teaching BUS 2080 course. In addition, removal of the IE specific content provides more flexibility in selecting instructors in future. Classroom needs are typical for courses, with media capabilities required. Library resources are adequate.

Impact on Distribution Requirements and Other Courses: This course will continue to be required for all students completing the BU, MGE, MIS majors, and would be one of two options for DS majors. It will continue to be listed in the BUS and DS minors.

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to add AR 2750 Topics in Studio Art approved by the Department of Humanities and Arts on February 15, 2019.

Motion: The Committee on Academic Operation recommends, and I move, that AR 2750 Topics in Studio Art, as described below, be added.

Course/Catalog Description: Specialty subjects are offered using the research and creative expertise of the department faculty. Content and format varies to suit the interest and needs of the faculty and students. Courses are defined through the registrar and may be repeated for different topics covered. Students may not receive additional credit for taking this course more than once with the same title.

Recommended background: AR 1100

Cat III

Anticipated Instructors: Josh Rosenstock, Associate Professor of Art at WPI; Thomas O'Malley, Department Head for Ceramics at the Worcester Craft Center; Gale Scott, Department Head for Glass at the Worcester Craft Center; Marie Keller, Assistant Teaching Professor. Professor Jennifer deWinter and Professor Rosenstock will review course plans and meet with instructors, as well as students, to ensure the academic integrity of the credit awarded.

Rationale: WPI has very high demand for art courses and recently added our first studio art course (*Figure Drawing, AR2022*). Demand for these courses is regularly more than double the capacity available. One of the main barriers to expanded offerings has always been the lack of studio space on campus. Through experimental courses offered 2017-2018 (in ceramics and glass blowing), we have tested a partnership between the Worcester Craft Center and WPI. While this partnership is still under development, we have capacity and demand to offer rotating studio art courses by WPI faculty and we would like to continue to offer this small number of classes with the Worcester Center for Crafts while the financial details of the partnership are finalized.

Our goal is to provide regular offerings of studio art classes at WPI, as well as courses and access to open studio time at the Craft Center for WPI students. This supports our students' creative interests, has direct connections to Art in STEAM education, supports recent interest in design thinking, and extends our students' access to maker spaces and material expertise through the craft center.

The rationale for providing this as a single, definable course borrows from practices both at WPI and at other art and design schools. Like other programs, this functions as a special topics course. In HUA, we have creative writing courses and writing courses that are definable and can be taken multiple times with different designations (i.e., creative writing: non-fiction; creative writing: poetry; elements of writing: medical writing; elements of writing: digital writing). Within creative disciplines, these are all separate topics. Art and design schools, too, often use

the definable studio art designation. The principles of studio art are taught, such as design, iterative practice, refinement in process, and show; however, the content is changed to include ceramics, glass, enameling, sculpting, and so forth. Students can take the courses multiple times for course credit with different designations. Examples might include: Interactive Wall Art, Glass Blowing, Puppetry and Animatronics, Ceramics, Sculpting, and the like.

Because WPI does not have pre-requisite requirements, we decided to eliminate the tiered numbering for the studio course at this time. Students taking the 1000 and 2000 levels of these courses were not taking them in order nor together. Rather, should we offer two content areas of ceramics, we will change the name of the course to be descriptive of content rather than additive. We had to do this in practice already, and the instructors who will teach under this designation already understand this.

All instructors are WPI instructors. Art faculty meet regularly for portfolio and syllabi review.

Implementation Date: Implementation date for this action is Term D20 with a second offering next academic year 2020-2021.

Resource Needs:

For courses offered at WPI with WPI faculty, we will use the following existing resources: The Digital Arts Studio and FabLab, the Foisie Innovation Center, and classrooms as needed. Faculty will rotate through this offering.

For courses offered through the Worcester Center for Crafts:

- a) The course will be offered at the Worcester Craft Center, 25 Sagamore Road, Worcester, MA. (A ten-minute walk, approximately one half mile, from the WPI campus.)
- b) The instructors are members of the WCC staff and hold terminal degrees in their fields (MFA). Each has been reviewed and appointed as adjunct instructors in the Humanities and Arts Department.
- c) The administration has agreed to provide the budget support needed for the offerings.

We offered 4 experimental courses previously: AR 161X, 261X, 162X, 262X (descriptions for Ceramics and Glass below). This course would replace these experimental courses as definable studio art courses.

Course Description: AR 161X, *Introduction to Ceramics I* (Category III). This course will focus on the development of the skills and understanding of the processes required to work with clay as an expressive material through the making of both handbuilt and wheel thrown pottery and sculpture. Students will learn of the origins of clay and ceramic materials, along with a range of forming and finishing techniques relative to handbuilding, sculpting and working with the potter's wheel, using stoneware clay. Through readings, lecture, and research students will explore historical as well as contemporary movements in field of ceramic art, while being challenged to develop their own self-expression within the medium. Class time will be divided between demonstration, lecture, and work time, with the expectation of regular use of open studio access in support of course work.

Course Description: AR 261X, *Introduction to Ceramics II (Category III)*. This course builds on work done during Ceramics I, allowing students to hone their skills and begin developing a personal approach and style. Through readings, lecture, and research, students will explore historical as well as contemporary movements in the field of ceramic art, while being challenged to develop their own self-expression in the medium. Class time will be divided between demonstration, lecture, and work time, with the expectation of regular use of open student access in support of course work.

Recommended background: experience at the level of Introduction to Ceramics I is assumed.

Course Description: AR 162X, *Glass I (Category III)*. This introductory course will focus on the processes of glassblowing and grinding. The fundamental skills of working with hot glass will be demonstrated in class and students will be guided through the development of these skills through one on one instruction. Practice time will be provided outside of class for students *after* the first week of class. This practice time is monitored by a teaching assistant. In class, students will explore different traditions, styles and historical periods in glass after a comprehensive introduction to glass history from its beginnings in the ancient world to the middle ages. Each student will cultivate his or her creative potential by making unique sculptures from molten glass. In addition to demonstrations and guided studio time, students will participate in critiques, historical slide lectures and be required to write a short research paper about the use of glass in ancient societies.

No experience in glass is assumed.

Course/Catalog Description: AR 262X, *Glass II (Category III)*. Students will continue to hone their skills learned in Glass I and will also be introduced to the processes of mold blowing and hot casting. Both mold blowing and hot casting require students to present a design based on information from in-class slide lectures and their own research. Practice time is provided outside of class for students starting the second week of class. This practice time is monitored by a teaching assistant. Students will explore different traditions, styles and historical periods in glass after a continued exploration of glass history from the middle ages to contemporary glass art and industry. Each student will cultivate his or her creative potential by making unique sculptures in each of these processes using principles of 3-D design. In addition to demonstrations and guided studio time, students will participate in critiques, historical slide lectures and be required to write a research paper about a contemporary glass artist.

Experience with glass at the level of Glass I, AR162X, is assumed.

Assessment: The courses will be assessed via the traditional method of student course reports. In addition, Jennifer deWinter, the Director of Interactive Media and Game Development and HUA faculty as well as Josh Rosenstock, Associate Professor of Art, will serve as the coordinators for the courses offered at the Worcester Craft Center. They will have primary responsibility for the review of the courses, the definition and assessment of the student learning outcomes for the courses.

These courses were offered on an experimental basis in the spring terms of 2017. Student demand was strong (all classes filled quickly and had long waitlists at the end of registration). Student assessment through the student course report surveys was strongly positive. The students' overall ratings of the course (Q1) and the instructor (Q2) are well above the university average. The students' rating of the amount learned (Q9) is also well above the university average. The data on the time spent outside of class (Q26B) is below the university average for Glass, perhaps because there is limited open studio time available to the students.

Table 1: Course report data from CD2017

	Count of responses	Q1	Q2	Q9	Q26B
Ceramics I: AR 161X (C17)	9	4.71	4.71	4.67	3.67
Glass I: AR 162X (C17)	12	4.67	4.64	4.92	2.25
Ceramics II: AR 261X (D17)	5	5.00	4.75	4.60	3.20
Glass II: AR 262X (D17)	5	4.25	4.50	4.25	2.00
WPI for CD17	16,459	4.14	4.13	3.91	2.98

Impact on Distribution Requirements and Other Courses: These courses provide a new a hands-on option for students wishing to complete their Humanities and Arts requirement with a focus in the Arts. The courses may also be used to satisfy the breadth requirement for students not focusing in the Arts. WPI does not have the studio space or equipment to offer these courses. This partnership with the Worcester Craft Center is also part of a broader strategy to elevate student access to hands-on “makerspace” activities at WPI. The makerspace in the Foisie Studio provides some access so low-level (mostly clean) maker activities. The Worcester Craft Center will provide opportunities for more work in ceramics, glassblowing, and enameling. There is no impact on other programs’ distribution requirements.

Date: November 7, 2019
To: WPI Faculty
From: Committee on Academic Operations (Prof. Strong, Chair)
Re: Motion to add EN 3225 approved by HUA on 9.27.19

Motion: The Committee on Academic Operations recommends and I move that EN3225 be added.

Course/Catalog Description:

EN3225. Shakespeare in Performance. Cat II

This course examines a selection of Shakespeare's plays, specifically addressing issues of performance. We will approach the plays through close reading; in relationship to the historical, cultural, and theatrical context in which they were written and originally produced; through viewing and analysis (film and live performance); and as they have been and can be interpreted for performance. We will explore the relationship between text and performance in a practical way with performance exercises and staging scenes from the plays. We will also consider how production elements (design elements including setting and costumes, casting, direction and performance choices, etc.) create and convey meaning and shape audience response. This course will be offered in 2020-21, and in alternating years thereafter.

Recommended background: Some familiarity with Shakespeare and or/theatre but the course is suitable for anyone with interest in the subject.

Anticipated Instructor: Kathryn Moncrief

Rationale: This course complements the department's existing introductory Shakespeare course (ENG 1222 Shakespeare in the Age of Elizabeth) by offering students a performance-focused course.

Implementation Date: 2020-21 academic year.

Resource Needs:

Instructor. No new resources required. The instructor has recently joined the WPI faculty as Head of HUA.

Classroom: The classroom must be a flexible space that accommodates both discussion and performance; students will be on their feet. It must also have a computer with access to the internet that can also play DVDs as well as projection equipment in order to view films and video clips.

Library resources: A subscription to Digital Theatre + (or similar) database would be helpful but is not imperative.

Support from Academic Technology: Yes, in helping students film their performances. I spoke briefly with staff from academic technology during new faculty orientation about this and was assured that this is something they support.

Impact on Distribution Requirements and Other Courses:

The course will provide an additional option for students completing the HUA requirement.

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to change the title, number, description, and schedule for HI 2910 for AY 2020-2021, consistent with the approval by a vote of the HUA faculty on September 27, 2019

Motion: The Committee on Academic Operations recommends and I move that HI 2913, Capitalism and its Discontents, as described below, be added.

Course/Catalog Description:

HI 2913. CAPITALISM AND ITS DISCONTENTS, Cat. II

This course focuses on modern capitalism as an economic, social, and cultural formation in global perspective. As capitalism has radically changed the way humans live and work, critics have articulated their various discontents. Topics to be discussed include colonialism, enslavement, industrialization, social movements, automation, climate change, and global inequality. In addition to our readings, students will directly engage with the rich materials on global labor history available at WPI and in Worcester. This course will be offered in 2021-22, and in alternating years thereafter.

Anticipated Instructors: Holger Droessler, Jim Hanlan, John Galante

Rationale: In recent years, scholars of capitalism have increasingly focused on global comparisons, connections, and movements among workers and capitalists. Depending on the instructor, the course can retain a substantial amount of material related to the history of workers in North America, a subject treated in a course to be dropped, HI 2910, American Labor History. The new course also allows for faculty with different regional expertise or disciplinary training to offer a course focused on global capitalism. Given past challenges in enrollment for the course on American Labor History, the new course will begin Cat. II offerings in AY 2021-22. Apart from that schedule, the course may be offered during AY 2020-21. The scope of the course will appeal to a broader set of students interested in work, labor, and capitalism in global perspective.

Implementation Date: AY 2020-2021

Resources Needs: No new resources are needed. The expected enrollment is 20 students.

Impact on Distribution Requirements and Other Courses: None.

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to remove HI 2910, American Labor History, from the undergraduate catalog, approved by Humanities and Arts Department on September 27, 2019.

Motion: The Committee on Academic Operation recommends and I move, that HI 2910 American Labor History be removed from the undergraduate catalog.

Rationale: This course will be replaced by HI 2913. CAPITALISM AND ITS DISCONTENTS, Cat. II

Provide course description:

HI 2910. AMERICAN LABOR HISTORY, Cat. I

This seminar course will deal with the history of organized labor in America as well as with the historic contributions of working people, whether unionized or not, to the growth and development of American ideas, politics, culture, and society. Among the topics to be covered will be: the origins, growth, and expansion of trade and industrial unionism; the roots and development of working-class consciousness; the underlying causes and eventual resolution of labor disturbances; the philosophical and ideological perspectives of the labor movement. Students will explore topics raised by common readings via written papers, seminar presentations, and work with primary source materials. Suggested background: HI 2314, American History, 1877-1920; or HI 2315, The Shaping of Post-1920 America.

Note changes to catalog: Deletion of HI 2910.

Impact on Distribution Requirements and Other Courses: This course is replaced by new course and does not result in changes to distribution requirements. The course is Cat. I, and typically has been scheduled during A term or B terms. However, the course has occasionally not been offered after low enrollments.

Implementation Date: Implementation date for this action is the 2020-21 academic year.

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to add HI 3344 for AY 2020-2021, consistent with the approval by a vote of the HUA faculty on September 27, 2019

Motion: The Committee on Academic Operations recommends and I move that HI 3344, Pacific Worlds, as described below, be added.

Contact: Holger Droessler

Course/Catalog Description:

HI 3344. PACIFIC WORLDS, Cat. II

The Pacific Ocean covers a third of our earth's surface. Home to over a thousand languages and thousands of years of rich histories, the Pacific has been and continues to be one of the most diverse regions of cultural, social, economic, and environmental interaction. The course focuses on both local connections to the Pacific, such as the New England whaling industry, and global issues, such as the impact of climate change on Pacific islanders. Other topics to be discussed include the environment, oceanic navigation, arts, colonialism, race, and migration. This course will be offered in 2020-21, and in alternating years thereafter.

Anticipated Instructors: Holger Droessler, William San Martín, David Spanagel, Jennifer Rudolph

Rationale: PACIFIC WORLDS adds the study of our planet's largest ocean and its diverse peoples to the HUA catalogue. In true HUA fashion, this course's interdisciplinary approach combines Pacific history with the study of Oceanic cultures, languages, belief systems, non-human environments, science & technology, and art. Students will learn a broad set of skills, including analyzing diverse sources (from creation stories to oral history) and presenting their arguments to a wider audience in the form of podcasts or videos. The course may be especially valuable preparation for stays at our Global Project Centers around the Pacific (California, Costa Rica, Panama, Ecuador, Hawai'i, New Zealand, Australia, Japan, China). The course is intended for students in HUA, Sustainability Engineering, Environmental and Sustainability Studies, and International and Global Studies.

Recommended Background: none

Implementation Date: AY 2020-2021

Resources Needs: No new resources are needed. The expected enrollment is 20 students.

Impact on Distribution Requirements and Other Courses: none

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to remove HI 3342, Topics in Comparative Civilizations, from the undergraduate catalog, approved by Humanities and Arts Department on September 27, 2019.

Motion: The Committee on Academic Operation recommends and I move, that HI 3342 Topics in Comparative Civilizations be removed from the undergraduate catalog.

Rationale: The former instructor of this course has retired, and new faculty will offer a new course, HI 3344. PACIFIC WORLDS, Cat. II.

Provide course description:

HI 3342. TOPICS IN COMPARATIVE CIVILIZATIONS. Cat. II

This seminar course compares and contrasts major religious, philosophical, social, and political themes in different civilizations. Comparisons will vary each year but may be drawn from Asia, the Indian subcontinent, the Middle East, Africa, and indigenous cultures of the Americas. It examines the historical foundations of these civilizational differences and draws comparisons with common features of Western civilization. One important goal of the course is to enhance student appreciation of non-Western values and traditions. This course will be offered in 2018-19, and in alternating years thereafter

Note changes to catalog: Deletion of HI 3342.

Impact on Distribution Requirements and Other Courses: None. This course is replaced by new course and dropping the course does not result in changes to distribution requirements. This course was Cat. II, and has been offered in alternate years in C term, most recently in 2018-19.

Implementation Date: Implementation date for this action is the 2020-21 academic year.

Date: November 7, 2019

To: WPI Faculty

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

Re: The Department of Humanities and Arts requests the approval of the following course (HU 2258: World Cinemas) in 2022 in D term, per departmental approval on September 13, 2019.

Motion: The Committee on Academic Operations recommends and I move that HU 2258: World Cinemas be added.

Course/Catalog Description: *HU 2258: World Cinemas. Cat. II.* This course will examine works of film from multiple continents, drawing on film criticism and theory and attending to the development of film industries in several different cultural contexts and national traditions. Some iterations may turn on a broader survey, others on more particular engagements with wider inflections. For example, an offering emphasizing African film might attend not only to films made on the African continent but also to films emerging from the African diaspora in the Americas, and an offering emphasizing Italian film would also attend not only to the films made on the Italian peninsula but also to films emerging from the Italian diaspora in Australia and the United States. *This course will first be offered in 2021-2022, and in alternating years thereafter.*

Recommended background: None, though HU 2251: Introduction to Film Studies will serve as useful preparation.

Intended audience: Students who have completed HU 2251: Introduction to Film Studies, and are seeking further coursework in Film Studies; Students seeking breadth toward the HUA Requirement; Students departing for or returning from HUA and IQP experiences at project centers around the world seeking relevant coursework; a wide range of students looking for HUA electives, including juniors and seniors beyond the HUA requirement looking for general electives.

Rationale: Although the catalog currently includes a wide range of courses in literary studies and interactive media, there is only one course offering solely devoted to film studies, HU 2251: Introduction to Film Studies. Since becoming a permanent offering, this course has enjoyed robust enrollments, filling to 50 students in 2017, and nearly at capacity with 46 students in 2019. Many students who have taken HU 2251 have asked about further offerings in film studies, or even a minor in film studies. This course would alternate years with HU 2251, serving students who are interested in broadening and deepening their knowledge of film, and would open the way to a more robust film studies program that might more firmly connect the Humanities and Arts Department with the emerging Global School. WPI's ongoing pivot toward global engagement and international studies suggests the need for a broader array of courses engaging with expressive culture on the world stage, whether in terms of literary, musical, or visual forms, and as such this course is designed in parallel with a related proposed new course, EN 2281: World Literatures.

Anticipated Enrollment: ~30 students

Anticipated Instructors: Profs. Jim Cocola and Rebecca Moody, with Prof. Lindsay Davis as a capable alternate.

Resource Requirement:

- a) What currently available resources will be needed. The proposed course will require the use of a classroom with a suitably big screen. Library resources will include an ongoing commitment to film holdings in physical and digital form.
- b) What new resources will be needed. No new resources will be required.

Assessment: This course will be assessed via attention to enrollment demographics, instructor feedback, course reports (including data from questions 1, 2, and 9), and departmental review.

Contact: Jim Cocola

Preferred term: D2022

Course type: lecture / discussion

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to add INTL 2110 GLOBAL JUSTICE, approved by the International and Global Studies Program on September 24, 2019, and Department of Humanities and Arts on September 27, 2019.

Motion: The Committee on Academic Operation recommends and I move, that INTL 2110. Global Justice, as described below, be added.

Course/Catalog Description:

INTL 2110. GLOBAL JUSTICE. Cat. II

What is justice during an era of globalization? What are the rights and responsibilities of individuals, groups, nations, or supranational organizations in a world of profound inequalities of wealth or disparities of power? This course takes an interdisciplinary approach to historical, literary, religious, and ethical debates about global justice as well as the political and practical responses by various actors in the global South and North. Themes will vary each time the course is taught and may include globalization and distributive justice, climate justice, migration, citizenship, cosmopolitanism, human rights, ideology, reparations, racial or gender equity, nationalism and internationalism, and global democracy. No prior background required. This course will be offered in 2020-21, and in alternating years thereafter.

Recommended background: None.

Anticipated Instructors: Geoffrey Pfeifer, Jennifer Rudolph, Rebecca Moody, Yunus Telliel, Shana Lessing Peter Hansen

Rationale: This course fulfills a curricular need for interdisciplinary courses bringing together critical perspectives on historical, literary, ethical, and philosophical debates over globalization and justice. At the intersection of multiple pathways in the Humanities and Arts requirement, the course will be helpful for students pursuing various areas of depth or breadth. The course delves more deeply into certain issues touched on briefly in INTL 1100 Introduction to International and Global Studies, INTL 2100 Approaches to Global Studies, or some Great Problems Seminars. The objectives of this course: Students who complete this course will be able to identify, articulate and critically evaluate competing arguments about global justice, and develop their own point of view on the thematic issues featured in the course. Themes will vary with the instructor. This course will be appropriate for students going to any of WPI's global project centers.

Implementation Date: Academic Year 2020-21.

Resource Needs: No new resources are required. The department already has several full-time faculty with teaching and research interests appropriate for this course. Classroom needs are typical for HUA courses. No special information technology is required. Library resources are adequate to offer this course. The expected enrollment is 35, and the course type is Lecture/Discussion.

Impact on Distribution Requirements and Other Courses: This course will provide additional options for students completing the Humanities and Arts Requirement, the International and Global Studies Minor or Major, the Humanities and Arts Major, and programs related to sustainability or international development.

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to add ISE 2810 Listening and Speaking for Non-native Speakers of English approved by Department of Humanities and Arts on 9/13/2019

Motion: The Committee on Academic Operation recommends and I move, that ISE 2810 Listening and Speaking for Non-native Speakers of English, as described below, be added.

Course/Catalog Description:

ISE 2810 Listening and Speaking for Non-native Speakers.

Cat II.

This course addresses the academic needs of high-intermediate/advanced non-native English language learners by developing their listening and speaking skills. Students will engage in activities to practice and improve listening skills, and participate in speaking activities to improve comprehensibility through pronunciation improvement. Recommended background: Oral communication skills (ISE 1803) or equivalent skills.

Note: Students who have taken ISE 281X may not receive credit for this course.

This course will be offered in 2019-2020, and in alternate years thereafter.

Anticipated Instructor: Prof. Esther Boucher-Yip or Prof. Mohammed El Hamzaoui

Rationale: As part of the English for International Students course sequence, this proposed course would serve the needs of English language learners by developing their skills in listening and speaking. Currently, there are three course offerings for international non-native speakers of English at the 1000-level (ISE 1800, ISE 1801, ISE1803) and two courses at the 2000-level (ISE 2800 and ISE 2820). The proposed course, at the 2000-level, will serve students who want to further develop discrete skills in listening, speaking and pronunciation. The proposed course will also fill a gap in our current permanent curriculum for international students that addresses the development of the four language skills. In this course, students will engage in and practice general and academic listening skills, and improve intelligibility through the use of correct grammar forms and complex vocabulary. Students will also improve their pronunciation by practicing individual sounds that correspond to the phoneme sounds in English.

The proposed course number has not been used previously.

This course was taught as an experimental course in Academic Years 2017 and 2018 during B-terms. A summary of student feedback and outcomes from questions 1, 2, 9 and 26 of course evaluations are presented below for both sections B-2017 (10 responses) and B-2018 (10 responses):

	B-17	B-18
Q. 1	4.9	4.8
Q. 2	4.9	4.9
Q. 9	4.5	4.8
Q. 26		

1-5 hrs	1	1
6-10hrs	2	1
11-15hrs	7	4
16-20hrs	0	4

Student feedback:

At the end of the course, some class time was reserved for students to provide feedback and reflections on their learning. All students agreed that they enjoyed the course and found the learning objectives achievable within the seven-week term. However, many students realize that they need to put in the effort and time in practicing the skills learned in this course. Students reported that the small class size allowed them to feel ‘relaxed’ and that they are able to freely express their opinions, disagreements, ask questions, make mistakes, and make friends in this class. In responding to how this course could improve, students suggested more assignments that involved group discussions and more pronunciation practice on discipline-specific academic words.

Student feedback from course evaluations:

“I got to practiced speaking and pronunciation skills”

“Challenging assignments, real life assignments for use in academic and professional life”

“They will improve their English skills exponentially, and it will help them get ready for real life situations like interviews and meetings.”

“It’s a good course to improve speaking and listening skills”

“Class atmosphere is relaxing for students to speak up and express our opinions” “The in-class discussions helped me improve my speaking skills a lot”

“We can show who we really are and learn some American culture”

“Built my confidence” “I enjoyed learning the techniques of debating”

Instructor feedback and reflection:

This course was taught twice as an experimental course, in B term of 2017 with 11 enrolled students and B term of 2018 with 13 enrolled students (the course is capped at 15). In both terms, student evaluations indicated an overall positive response to the course by showing interest and enthusiasm for the course content. We met the learning objectives and course summative assessment suggests that students gained confidence and skill in speaking in a variety of contexts with improved intelligibility. Additionally, students demonstrated improved skill in listening for content in academic discourses. Improvements in speaking and listening skills were also reported in students’ self-evaluations and reflections.

If this course becomes permanent, I will continue to use the same textbook and supplementary materials to support student learning. I was satisfied with students’ improvements on listening for content and details on academic topics, but I observed that students could handle listening to longer discourses on a variety of topics. A change I will make is to use longer listening recordings from open resources such as podcasts and news sites, and develop follow up exercises that include discussions on world and US current issues.

To meet course objectives, I will continue to engage students in orally responding to issues that impact society and self. I will increase the amount of homework to include practice on frequently used words in discipline/major specific discourses. In addition, I realize there is a need for more group discussion exercises to help students understand how to manage group dynamics and discourse appropriately. While students learned skills in expressing themselves clearly, they can improve on learning how to negotiate disagreements and responding appropriately to making group decisions.

We anticipate student interest in this course will increase and the projected enrollment is 15 in each section.

Implementation Date: Implementation date for this action is the 2019-2020 academic year.

Resource Needs: The proposed course will be taught by Prof. Esther Boucher-Yip, who has taught this course twice as an experimental course, or Mohammed El-Hamzaoui who teaches ISE 1803 Oral Communication. No special software or additional library resources will be needed.

Impact on Distribution Requirements and Other Courses: The new course will have no impact on current distribution requirements. This course will be a permanent course offering.

Appendix A: Original Experimental Course Proposal

To: Chair, Committee on Academic Operations

From: Professor Kris Boudreau, Department Head, Humanities and Arts

Re: Motion to add experimental course ISE 281X Listening and Speaking for Non-native Speakers of English approved by Department of Humanities and Arts on Sept. 16, 2016.

Motion: The Department of Humanities and Arts requests the approval of the following experimental course *ISE 281X, Listening and Speaking for Non-Native Speakers of English* in Academic Years 2017 and 2018 during B term.

Note: Experimental courses are approved for two offerings.

Contact: Profs. Esther Boucher-Yip or Althea Danielski

Preferred term: B

Expected enrollment: 15

Course type: Lecture/Lab

Intended audience: If the course becomes permanent: potentially all high-intermediate/advanced level non-native English-speaking students

Anticipated Instructor: Prof. Esther Boucher-Yip

Course/Catalog Description: ISE281X Listening and Speaking for Non-native Speakers of English. Cat I. This course addresses the academic needs of high-intermediate/advanced non-native English language learners by developing their listening and speaking skills. Students will engage in activities to practice and improve listening skills, and participate in speaking activities

to improve comprehensibility through pronunciation improvement. Recommended background: Oral communication skills (ISE 1803) or equivalent skills.

Rationale: Currently, there are three course offerings for international non-native speakers at the 1000-level (ISE 1800, ISE 1801, ISE1803) and one course at the 2000-level (ISE 2800). The proposed course, at the 2000-level, will serve students who want to further develop discrete skills in listening, speaking and pronunciation. The proposed course will also fill a gap in our current permanent curriculum for international students that addresses the development of the four language skills. In this course, students will engage in and practice general and academic listening skills, and improve intelligibility through the use of correct grammar forms and complex vocabulary. Students will also improve their pronunciation by practicing individual sounds that correspond to the phoneme sounds in English.

Resource Needs: No new resources are required. Prof. Esther Boucher-Yip taught the oral communication course (ISE 1803) and will be assigned to teach this high-intermediate/advanced-level listening and speaking course.

Assessment: (1) questions 1, 2, 9, and 26 of student course evaluations; (2) students' feedback apart from course evaluations; (3) instructor's feedback and reflections; and (4) course population number.

Impact on Distribution Requirements: This course will have no impact on current distribution requirements. International students can choose to use this course to fulfill depth in the HUA sequence (with WR courses) or breadth.

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to add ISE 3800 Loaded Language: Discourse and Power in International English approved by Department of Humanities and Arts on 9/13/2019

Motion: The Committee on Academic Operation recommends, and I move, that ISE 3800 Loaded Language: Discourse and Power in International English, as described below, be added.

Course/Catalog Description:

ISE 3800 Loaded Language: Discourse and Power in International English.

Cat II.

This course, for international non-native English speakers, examines how the varieties of this global language can define identity, reflect social structures, and create and maintain power differentials. The course examines discourse, coded language and labels, accents, and strategies for communicating across cultures. We will explore the effects of World Englishes on our own minds, our classroom, our campus, our local community, and the global stage. Recommended background: Composition for non-native speakers of English (ISE 1801) or equivalent skills. This course satisfies the Inquiry Seminar requirement.

Note: Students who have taken ISE 380X may not receive credit for this course.

This course will be offered in 2019-2020, and in alternate years thereafter.

Anticipated Instructor: Prof. Althea Danielski or Prof. Mohammed El Hamzaoui

Rationale: There are currently no course offerings at the 3000-level for international non-native English speakers who want to continue in their English language development and pursue their interests in English language-related topics. As part of the English for International Students course sequence, this proposed course would serve the needs of English language learners by providing a capstone course in the ISE sequence, similar to a HUA inquiry seminar. This experimental course would appeal to international students since in most countries around the globe, some form of the English language is used to some extent in business, research and higher education. This course examines and explores the status of the English language and its worldwide diversity. It looks at how social and political factors influence people's attitudes towards it, and the relationship between one's linguistic heritage and sense of identity. Student will understand the diversity of the English language around the world and the ways in which different varieties of English are categorized and used. The course will encourage students to be ethical users and shapers of English.

The proposed course number has not been used previously.

This course was taught as an experimental course in D-term 2018 and C-term 2019. A summary of student feedback and outcomes from questions 1, 2, 9 and 26 of course evaluations are presented below for both sections D-2018 (5 responses) and C-2019 (8 responses):

D-18

C-19

Q. 1	4.8	4.8
Q. 2	5	4.9
Q. 9	4.4	4.9
Q. 26		
1-5 hrs	3	0
6-10hrs	0	4
11-15hrs	1	1
16-20hrs	0	3

Student feedback:

At the end of the course, some class time was reserved for students to provide feedback and reflections on their learning. Many students said they felt that this course was important not only for the content of learning how English is used in the world, but for better understanding themselves as users and shapers of English and their own languages. Because of the controversial nature of the topics we explored (issues of social justice in regard to linguistic imperialism and linguicism), students reported that the small class size allowed them to feel comfortable with sharing their opinions, disagreements, questions and concerns.

In responding to how this course could improve, students suggested more direct instruction on writing the research paper, and more assignments that involved group activities. One student suggested adding more personal language logs assignments, to offset the heavier percentage of points that are placed on the research paper.

Student feedback from course evaluations:

“This course is really pertinent for International students.”

“This course has given me a new perspective on the use of English language.”

“I will also make sure that my children use English instead of being used by it!”

“After taking this course, my outlook on English has matured. I have come to see hidden meanings within languages, understand why some people speak English less proficiently and not make assumptions based on that, and have realized what I should do to be an ethical speaker of English.”

“As an Arab, I want to preserve my identity, and I use English to embrace my culture everywhere I go with confidence and pride. To be an ethical speaker of English, I will try as much as I can to not use offensive terms that target a certain religion, race, colors, sexual identity and gender. I will also respect the language by using it to express my own self and I will not use it to implant the western culture inside me.”

“From my perspective, this research paper helps me to understand the power of English and the issues that are associated with it, which is the goal of this course.”

“The student leading discussion is a really good practice for our leadership.”

“I have personally had an urge to talk to people about this issue [*the use of English as a tool of oppression in Pakistan*] for a long time, but never actually had proper resources to do so, or an organized method; however, the research paper enabled me to channel my feelings into something easily accessible and understandable by other people.”

“The research paper is really a good learning point. You can focus it on things you have wanted to learn about. It helps boost your paper writing skills. Support of the teacher was awesome!”

Instructor feedback and reflection:

This course was taught twice as an experimental course, in D term of 2018 with 5 enrolled students and C term of 2019 with 8 enrolled students (the course is capped at 15). In both terms, student evaluations indicated an overall positive response to the course by showing interest and enthusiasm for the course content.

We met the learning objectives and course summative assessment suggests that students gained confidence and skill in using critical discourse techniques to analyze how and why we use the English language in the ways that we do, and the implications of these uses. Students demonstrated improved skills in reading critically, leading discussions, and writing evidence-based research papers.

If this course becomes permanent, I will continue to use both language logs and the research paper as the major assignments in the course, but I will increase the number of language logs, as they allow students more practice in critical discourse analysis and in leading discussions. I will also provide more direct instruction on the organization and writing of the research paper.

We anticipate student interest in this course will increase and the projected enrollment is 15 in each section.

Implementation Date: Implementation date for this action is the 2020-2021 academic year.

Resource Needs: The proposed course will be taught by Prof. Althea Danielski, who has taught this course twice as an experimental course, or Mohammed El-Hamzaoui who teaches the other ISE courses and has background experience in sociolinguistics. No special software or additional library resources will be needed.

Impact on Distribution Requirements and Other Courses: The new course will have no impact on current distribution requirements. This course will be a permanent course offering.

Appendix A: Original Experimental Course Proposal

To: Chair, Committee on Academic Operations

From: Professor Kris Boudreau, Department Head, Humanities and Arts

Re: Motion to add experimental course ISE 380X

Date: 09/16/2016

The Department of Humanities and Arts requests the approval of the following experimental course ISE 380X Loaded Language: Discourse and Power in International English in Academic Years 2017 and 2018 during C and D terms.

Note: Experimental courses are approved for two offerings.

Contact: Esther Boucher-Yip

Preferred term: C 2017

Expected enrollment: 20

Course type: Lecture/Lab

Intended audience: If the course becomes permanent: advanced-level non-native English speakers

Anticipated Instructor: Althea Danielski and Esther Boucher-Yip as an alternate.

Course/Catalog Description: ISE 380X Loaded Language: Discourse and Power in International English Cat I.

This course, for international non-native English speakers, examines how the varieties of this global language can define identity, reflect social structures, and create and maintain power differentials. The course examines discourse, coded language and labels, accents, and strategies for communicating across cultures. We will explore the effects of world Englishes on our own minds, our classroom, our campus, our local community, and the global stage. Our aim is to understand not just how we use English, but also how English uses us. Our goal is to use that knowledge to act as ethical speakers of International English.

Recommended background: ISE 1801 or equivalent skills. This course satisfies the Inquiry Practicum requirement.

Rationale:

There are currently no course offerings at the 3000-level for international non-native English speakers who want to continue in their English language development and pursue their interests in English language-related topics. This experimental course would appeal to international students since in most countries around the globe, the English language can be found in some form or another. This course examines and explores the status of the English language and its worldwide diversity. It looks at how social and political factors influence people's attitudes towards it, and the relationship between one's linguistic heritage and sense of identity. Student will understand the diversity of the English language around the world and the ways in which different varieties of English are categorized.

Resource Needs:

No new resources are required.

Assessment:

(1) questions 1, 2, 9, and 26 of student course evaluations; (2) students' feedback apart from course evaluations; (3) instructor's feedback and reflections; and (4) course population number.

Impact on Distribution Requirements:

This course will have no impact on current distribution requirements. International students can choose to use this course to fulfill depth in the HUA sequence (with WR courses) or breadth. This course also satisfies the Inquiry Seminar requirement.

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to change Introduction to Technical Theatre approved by Department of Humanities and Arts on 9/27/2019.

Motion: The Committee on Academic Operation recommends, and I move that the title and description for Theatre Workshop EN2222 CAT1 be changed as described below.

Existing title, description and course offering schedule:

Theatre Workshop

EN2222 Cat 1

A workshop course which offers the student the opportunity to explore theatre through creative involvement with playwriting, design, performance, production, and criticism. Students will work in a laboratory situation functioning as a micro-professional theatre which could develop a production that would be staffed and dramaturged from the group.

Proposed title, description, and course offering:

Introduction to Technical Theatre

EN2222 Cat 1

This course introduces students to a variety of technical theatre disciplines, including scenic, lights, sound, props, costumes and more. Each week, students will focus on different technical elements through a combination of lectures, demonstrations, and hands on workshops. Students will demonstrate their learning through various projects and involvement in the current term production.

Explanation of Motion:

To adjust the title and description to reflect the current course accurately.

Rationale:

Over the last 15 years, Theatre Workshop has served as WPI's intro to technical theatre class. The curriculum covers the basics for several technical topics including scenic, lighting, sound, props, costumes and more. These changes would have the title and decision match the course that is currently being taught at WPI.

Impacts on students:

No impact to the students

Resource Needs:

No new recourse would be needed

Implementation Date: 2020-2021

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to change the title for MU 2631 approved by Department of Humanities & Arts on 09/13/2019.

Motion: The Committee on Academic Operation recommends and I move, that the title and description for Men’s Glee Club – MU 2631 be changed as described below.

Existing title, description and course offering schedule:

Men’s Glee Club

Cat. I The Glee Club is the men's choral ensemble and the oldest student organization on campus. Glee Club performs many styles and periods of the vast repertoire of music for men's ensembles. Several times each year the Glee Club and Alden Voices (Women's Chorale) join forces as the WPI Festival Chorus to perform major works of the repertoire. The Glee Club tours Europe and also performs on tour. Rehearsals are held weekly. Prior singing or music experience is encouraged but not required. Open to all men.

Proposed title, description, and course offering:

Glee Club

Cat. I The Glee Club is one of WPI’s choral ensembles and the oldest student organization on campus. Glee Club performs many styles and periods of the vast repertoire of music featuring tenor and bass voices. Several times each year the Glee Club and Alden Voices (soprano and alto voices) join forces as the WPI Festival Chorus to perform major works of the repertoire. The Glee Club regularly performs on campus, throughout the Worcester area, and takes international and domestic tours. Rehearsals are held weekly. No audition is required. The course is open to all who are interested and sing in the tenor and bass range.

Explanation of Motion: This proposal is to drop the gender term “Men’s” in the title and remove all gender terms throughout the course description.

No other changes will be made to this course, such as content or course offering, beyond the title and description. Therefore, it is not necessary to propose dropping this course and adding a new one.

Rationale: Men’s Glee Club is a choir for anyone who feels comfortable singing with-in the tenor and bass vocal range, welcoming all regardless of gender. The motion to drop the term “Men’s” in the title and description is to represent the inclusive nature of the course.

Impacts on students: This change will provide access and acceptance to students who may have previously felt excluded.

Resource Needs:

Please summarize basic resources needed to deliver this course, including the following:

- No new resources are needed.

Implementation Date: 2020-21 Academic year

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to change the title for MU 2632 approved by Department of Humanities & Arts on 09/13/2019.

Motion: The Committee on Academic Operation recommends and I move, that the title and description for Alden Voices – MU 2632 be changed as described below.

Existing title, description and course offering schedule:

Alden Voices

Cat. I Alden Voices is the women's choral ensemble. Alden Voices performs many styles and periods of the vast repertoire of music for women's ensembles. Several times each year Alden Voices and the Men's Glee Club join forces as the WPI Festival Chorus to perform major works of the repertoire. Alden Voices performs on tour as well as performing on campus. Rehearsals are held weekly. Prior singing or music experience is encouraged but not required. Open to all women.

Proposed title, description, and course offering:

Alden Voices

Cat. I Alden Voices is one of WPI's choral ensembles and also functions as a student organization on campus. Alden Voices performs many styles and periods of the vast repertoire of music featuring soprano and alto voices. Several times each year the Alden Voices and the Glee Club (tenor and bass voices) join forces as the WPI Festival Chorus to perform major works of the repertoire. Alden Voices regularly performs on campus, throughout the Worcester area, and takes international and domestic tours. Rehearsals are held weekly. No audition is required. The course is open to all who are interested and sing in the soprano and alto range.

Explanation of Motion: This proposal is to remove all gender terms throughout the course description.

No other changes will be made to this course, such as content or course offering, beyond the course description. Therefore, it is not necessary to propose dropping this course and adding a new one.

Rationale: Alden Voices is a choir for anyone who feels comfortable singing with-in the soprano and alto vocal range, welcoming all regardless of gender. The motion to drop the use of female gender in the description is to represent the inclusive nature of the course.

Impacts on students: This change will provide access and acceptance to students who may have previously felt excluded.

Resource Needs:

Please summarize basic resources needed to deliver this course, including the following:

- No new resources are needed.

Implementation Date: 2020-21 Academic year

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to change the title for MU 2638 approved by Department of Humanities & Arts on 09/13/2019.

Motion: The Committee on Academic Operation recommends and I move, that the title and description for Vocal Performance Lab – MU 2638 be changed as described below.

Existing title, description and course offering schedule:

Vocal Performance Lab

Cat. I The Vocal Performance Lab is a performance practice oriented chamber vocal ensemble. This ensemble explores specific stylistic techniques as pertains to the music of the Renaissance, Baroque, twentieth century, jazz, and extended vocal techniques (electronic, digital and experimental). The ensemble meets weekly. Students are expected to be of the highest vocal caliber and should possess advanced sight-reading techniques. Open to both men and women. Permission of the instructor is necessary to register.

Proposed title, description, and course offering:

Chamber Choir

Cat. I The Chamber Choir is WPI's smaller, audition-based, choral ensemble. This ensemble explores specific stylistic techniques as pertains to the music of the Renaissance, Baroque, twentieth century, jazz, and extended vocal techniques (electronic, digital and experimental). The ensemble meets weekly. Students are expected to be of the highest vocal caliber and should possess advanced sight-reading techniques. Open to all who are interested. Permission of the instructor is necessary to register.

Explanation of Motion: This proposal is to change the title of "Vocal Performance Lab" to "Chamber Choir," and make minor updates to the course description.

No other changes will be made to this course, such as the course offering, beyond those listed above. Therefore, it is not necessary to propose dropping this course and adding a new one.

Rationale: The title "Vocal Performance Lab" misrepresents the content of the course, since the course is a choir and not a lab. The title has additionally caused confusion amongst students with the "Vocal Performance Practicum – HU 3910, D11" and other performance practicums on campus. The title change to "Chamber Choir" will alleviate this confusion and provide a title that properly relates to the content of the course.

Impacts on students: This change will provide clarity for students interested in the different music offerings at WPI.

Resource Needs:

Please summarize basic resources needed to deliver this course, including the following:

- No new resources are needed.

Implementation Date: 2020-21 Academic year

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to revise the course description for PY/RE 2731, Introductory Ethics
DEPARTMENT APPROVAL Date: September 27, 2019

Motion: The Committee on Academic Operations recommends and I move that the following motion to adjust the course description for PY/RE 2731, Introductory Ethics, be approved.

Existing title, description and course offering schedule:

PY/RE 2731. INTRODUCTORY ETHICS. *Cat. I*

This course will review at an introductory level theories of ethics, individual figures in the history of ethics, and selected problems in ethics. The emphasis will be on philosophical or religious ethics depending on the instructor.

Proposed title and description change:

PY/RE 2731. ETHICS. *Cat. I*

This course offers a general introduction to modern moral theory. What makes one action wrong, and another right? What are our moral duties towards others? Do moral values change over time, making beliefs about right and wrong simply "relative," or are moral values objective, holding true for all people, everywhere, at all times? Should emotions play a role in ethical deliberation, or should we aspire to be purely rational when engaged in moral thought and action? Is it okay to cheat on an exam, so long as everybody else does it? Do we have a right to use animals in laboratory experiments? Is eating meat ethical? Is it wrong to share a racist or sexist joke? Should abortion be legal? Students will learn how to apply key moral concepts to real-world problems and situations after closely studying several moral theories, including utilitarianism, Kantianism, and feminist care ethics. Other topics covered include moral relativism, psychological hedonism, and ethical egoism.

Explanation of motion: We propose that the course title and description of PY/RE 2731 be revised, in order to more accurately reflect the content, scope, and themes of the course. This change will not affect the distribution requirements in the Humanities and Arts Department.

Rationale: This revised course title and description is meant to remedy two problems. First, the "Introductory" in the current course title is misleading, implying, falsely, that Humanities and Arts offers a *more advanced* ethics class. In fact, however, the course content in PY/RE 2731 is no more (or less) "introductory" than any other of the 2000-level courses offered in PY/RE, thus rendering the qualifying term "introductory" redundant as well as confusing. Second, the original course description is unnecessarily vague: the proposed new course summary provides a clearer and more detailed overview of what is covered in the course.

Impacts on students: We believe that the new, livelier course description will pique the interest and curiosity of the students who read it, leading to fuller enrollments in the course.

Resource Requirement: No change.

Implementation Date: As soon as possible in the next catalogue iteration, 2020-2021.

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to amend the graduation requirements for the B.S. in Actuarial Mathematics

Motion: The Committee on Academic Operations recommends and I move that the degree requirements for the B.S. in Actuarial Mathematics be amended to require MA3212.

Current Catalog Description: (page 94 of the 2019-2020 catalog)

Notes:

1. Must include MA3631, MA3831 and MA3832, or their equivalents, at least one of MA3257, MA3457, or equivalent
3. Must include four of the following: MA 2212, MA 3212, MA 3213, MA 4213, MA 4214, MA 4892, or their equivalents

Proposed Catalog Description:

Notes:

1. Must include MA3212, MA3631, MA3831 and MA3832, or their equivalents, and at least one of MA3257, MA3457, or equivalent
3. Must include three of the following: MA 2212, MA 3213, MA 4213, MA 4214, MA 4892, or their equivalents

Rationale:

The course MA3212, Actuarial Mathematics I, builds upon material learned in earlier courses along the path to the Actuarial Mathematics major. It brings together probability, statistics, and time value of money concepts so students can perform premium, reserving, and life expectation calculations. These essential skills will be assumed of anyone graduating with the Actuarial Mathematics degree.

In addition, the industry exam covering this material (SOA Exam LTAM) is traditionally one of the most difficult of the preliminary exams and a point of separation between those who will continue along the exam route to a professional designation and those who will transition out of actuarial roles.

In practice, no student has yet graduated with the MAC major without taking this course. This motion is to confirm that that remains the case.

Additional Resources: None. We do not anticipate increased enrollment as, historically, all MAC majors have taken this course.

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to add ME3902 Project-Based Engineering Experimentation which was approved by Mechanical Engineering Department on 09/10/2019.

Motion: The Committee on Academic Operation recommends and I move, that ME3902 Project-Based Engineering Experimentation as described below, be added.

Course/Catalog Description: ME3902 Project-Based Engineering Experimentation, Cat. I. This course is designed to develop experimental skills in engineering measurement methods, based on electronic instrumentation and computer-based data acquisition systems, such as the Raspberry Pi (a primarily digital microprocessor) and an Arduino (a primarily analog microcontroller). The lectures are concerned with the engineering design requirements as well as the principles of instrumentation, whereas the laboratory modules afford the student an opportunity to use these devices in actual experiments. Lecture topics include: discussions of standards, measurement and sensing devices, experiment planning, data acquisition, analysis of experimental data, and report writing. Laboratory experiments address mechanical (force/torque/strain measurements, motion/vibration measurements), energy (heat transfer, temperature, flow measurements), materials measurements (materials processing, measurement of strain and position in mechanical testing of materials), and instrumentation. The course culminates with an open-ended project of the students choosing. This open-ended project will illuminate the skills gained by the student to utilize multiple sensors and equipment to monitor and/or control physical situations.

Recommended background: introductory heat transfer (ES3003 or equivalent), introductory stress and dynamic mechanics (ES 2502 & ES 2503 or equivalents), introductory electrical and computer engineering (ES2010 or equivalent) and introductory materials (such as ES 2001 or equivalent).

Anticipated Instructor: John Sullivan and Ahmet Can Sabuncu

Rationale: Describe how this fulfills curricular needs, learning objectives, and outcomes. Include enrollment projections.

The ME department has consolidated its engineering experimentation experiences into ME3901-Engineering Experimentation for the last 15+ years. This course satisfies all ABET requirements associated with engineering experimentation. It is offered every term (A, B, C, and D terms) with 3 sections each term. However, the course uses premier data acquisition systems and high-precision sensor instrumentation. Many of our graduating students do not take employment at large industrial companies with financial resources for such equipment. These students opt to work at start-up companies, NGOs and other societally conscious enterprises. ME3902 Project-Based Engineering Experimentation offers an attractive alternative while simultaneously satisfying all ABET requirements associated with engineering experimentation. The course uses significantly different equipment such that one course (ME3901) does not negate the other (ME3902). The proposed equipment in ME3902 is a perfect fit for executing open-ended student projects, as the microcontrollers and sensors are cost-effective and modular. Microcontrollers, compared with the equipment in ME3901, exist in different sizes and

capacities within an attractive price range. This is very useful in teaching experiments using open-ended projects as selecting equipment will be a component of the projects. Both ME3901 and ME3902 can be taken for credit. The mechanisms used for analog and digital measurements in these courses is substantially different. The sensors and their applications are different. The recommended backgrounds of electrical and computer engineering are the same as is the compliance with all of ABET requirements. The ME department plans to offer this course at least once per year with a commensurate reduction in the offerings of our traditional ME3901.

Implementation Date: Implementation date for this action is the 2019-2020 Academic year.

Resource Needs:

Please summarize basic resources needed to deliver this course, including the following:

- Information on the instructor: the instructor normally teaches ME3901 annually. Due to ME's student loads, we offer 3 sections of ME3901 every term. We are replacing one of those term offerings with ME3902. Hence the instructor availability exists.
- Classroom: ME uses HL031 – the mechanical engineering experimentation laboratory as the location for ME3901. Each term that ME3902 is offered in place of ME3901 the experimental laboratory will be available. HL031 is also fully lecture-capture equipped for providing additional support to the students and for offering online course availability.
- Laboratory (computer or otherwise): The students will purchase the appropriate laboratory sensors and controllers, priced no higher than what is traditionally required of a textbook. The other equipment, such as monitors and PCs will be available in HL031.
- Library resources (including staff support as well as print and electronic resources): The library resources will not be significantly different from the ME3901 offering needs. The two courses are not scheduled to be offered in the same terms.
- Information Technology (special software or support from the Academic Technology center): The IT resources will not be significantly different from the ME3901 offering needs. The two courses are not scheduled to be offered in the same terms.

Impact on Distribution Requirements and Other Courses: ME3901-Engineering Experimentation is a required course for all ME majors. The ME department is adding ME3902 Project-Based Engineering Experimentation as an alternative course to satisfy ME distribution requirements. Both courses satisfy completely the ABET accreditation requirements for engineering experimentation. Consequently, adding this course alternative broadens the student's ability to complete the ME distribution requirements. All programs that accept ME 3901 to meet a requirement (Management Engineering and Architectural Engineering) have agreed to accept ME3902 as an alternative.

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to change distribution requirements for Mechanical Engineering Major approved by the Mechanical Engineering Department on April 9, 2019

Motion: The Committee on Academic Operation recommends and I move, that the distribution requirements for the Mechanical Engineering Major be modified as described below.

Existing Distribution Requirements:

The normal period of residency at WPI is 16 terms. In addition to WPI requirements applicable to all students (see page 7), students wishing to receive the ABET-accredited degree designated “Mechanical Engineering” must satisfy certain additional distribution requirements. These requirements apply to 10 units of study in the areas of mathematics, basic science, and engineering science and design as follows:

REQUIREMENTS	MINIMUM UNITS
1. Mathematics and Basic Science (Notes 1, 2, 3).	4
2. Engineering Science and Design (includes MQP) (Notes 3, 4, 5, 6, 7, 8, 9).	6

NOTES:

1. Must include a minimum of 5/3 units of mathematics, including differential and integral calculus and differential equations.
2. Must include a minimum of 1/3 unit in chemistry and 2/3 unit in physics, or 1/3 unit in physics and 2/3 unit in chemistry.
3. Must include an activity that involves basic matrix algebra and the solution of systems of linear equations, and an activity that involves data analysis and applied statistical methods.
4. Must include 1/3 unit in each of the following: electrical engineering, materials science, and mechanical engineering experimentation.
5. Must include at least one unit of ME courses at the 4000-level or higher.
6. May include 1000 level courses only if designated ES or ME.
7. Must include two stems of coherent course and/or project offerings as noted below in a and b.
 - a. A minimum of one unit of work in thermofluid systems that includes the topics of thermodynamics, fluid mechanics and heat transfer, plus an activity that integrates thermofluid design.
 - b. A minimum of one unit of work in mechanical systems that includes the topics of statics, stress analysis, and dynamics, plus an activity that integrates mechanical design.
8. Must include an activity which realizes (constructs) a device or system.
9. Must include 1/3 unit of Capstone Design Experience.

Items 3, 5, 7a integration, 7b integration, 8, 9 may all be “multiple-counted.”

Each Mechanical Engineering student must complete a Capstone Design experience requirement. This capstone design experience can be partially or fully accomplished by completing a Major Qualifying Project which integrates the past course work and involves

significant engineering design. At the time of registration for the MQP, the project advisor will determine whether the MQP will meet the Capstone Design requirement or not. If not, the academic advisor will identify an additional 1/3 unit of course work in the area of design (Ex: ME 4320, ME 4429, or ME 4810) to be taken in order to meet the ABET Capstone Design requirement.

MECHANICAL ENGINEERING

Proposed Distribution Requirements*:

Program Distribution Requirements for the Mechanical Engineering Major.

The normal period of residency at WPI is 16 terms. In addition to WPI requirements applicable to all students (see WPI DEGREE REQUIREMENTS), students wishing to receive the ABET-accredited degree designated “Mechanical Engineering” must satisfy certain additional distribution requirements. These requirements apply to 10 units of study in the areas of mathematics, basic science, and engineering science and design as follows:

REQUIREMENTS	MINIMUM UNITS
1. Mathematics and Basic Science (Notes 1, 2, 3).	-4 3 2/3
2. Engineering Science and Design (includes MQP) (Notes 3, 4, 5, 6)	-6 6 1/3

NOTES:

1. Must include a minimum of 2 units of mathematics, including differential and integral calculus and differential equations **and linear algebra.**
 2. Must include a minimum of 1/3 unit in chemistry and 2/3 unit in physics, or 1/3 unit in physics and 2/3 unit in chemistry.
 - ~~3. Must include an activity that involves basic matrix algebra and the solution of systems of linear equations, and an activity that involves data analysis and applied statistical methods.~~
3. Must include 1/3 unit in programming.
 4. Must include 1/3 unit in each of the following: electrical engineering, materials science, and mechanical engineering experimentation.
 - ~~5. Must include at least one unit of ME courses at the 4000 level or higher.~~
 - ~~6.5.~~ **5.** May include 1000 level courses only if designated ES or ME.
 - ~~7.6.~~ **7.6.** Must include two stems of coherent course and/or project offerings as noted below in a and b.
 - a. A minimum of ~~one 4/3~~ **4/3** unit of work in thermofluid systems that includes the topics of thermodynamics, fluid mechanics and heat transfer, plus ~~an activity 1/3 unit at or above the 4000 level~~ **1/3 unit at or above the 4000 level** that integrates thermofluid design.
 - b. A minimum of ~~one 4/3~~ **4/3** unit of work in mechanical systems that includes the topics of statics, stress analysis, and dynamics, plus ~~an activity 1/3 unit at or above the 4000 level~~ **1/3 unit at or above the 4000 level** that integrates mechanical design.
 - ~~8. Must include an activity which realizes (constructs) a device or system.~~
 - ~~9.~~ **7.** Must include 1/3 unit of Capstone Design Experience.
- ~~Items 3, 5, 7a integration, 7b integration, 8, 9 may all be “multiple counted.”~~

Each Mechanical Engineering student must complete a Capstone Design experience requirement. This capstone design experience can be partially or fully accomplished by completing a Major Qualifying Project which integrates the past course work and involves significant engineering design. At the time of registration for the MQP, the project advisor will determine whether the MQP will meet the Capstone Design requirement or not. If not, the academic advisor will identify an additional 1/3 unit of course work in the area of thermofluid design (ME 4422, ME 4429) or mechanical design (ME 4320, ME 4322, or ME 4810) to be taken in order to meet the ABET Capstone Design requirement

Rationale:

ITEM 1. ABET requirements for MA/SCI have change from a minimum of 36 credit hours (equivalent to 12/3 units) to a minimum of 30 credit hours (equivalent to 10/3 units). The proposed distribution requirements require at least 11/3 units, which is 1/3 unit less than the current requirements. In lieu of the reduced 1/3 unit in MA/SCI, the proposed requirements add 1/3 unit in programming (ITEM 3).

ITEM 3. For many years, we have looked for space to include a course in programming, clearly a modern tool needed in engineering. We would accept ME 2312, CS 1004 or CS 1101, ME 4512, or BME 1004. We anticipate most students who are not currently taking CS courses will migrate to the ME offerings. The CS and BME offerings will particularly help double majors.

Deletions of Activities: These multi-counted activities are unique to ME. Both students and advisors are often confused by the requirements, and the department feels the material can be handled through the new requirements.

Addition of 2/3 units in design but deleting the 1 unit 4000 requirement: ABET has moved from assessing student outcomes of “problem solving” to “complex problem solving”. This is defined by ABET as: “involving wide-ranging or conflicting technical issues, having no obvious solution, addressing problems not encompassed by current standards and codes, involving diverse groups of stakeholders, including many component parts or sub-problems, involving multiple disciplines, or having significant consequences in a range of contexts.” In a review of our nine core courses, we find we will be deficient in this area. We will continue allowing several courses in mechanical and thermal design to meet this requirement. For example, ME 4320 is offered 4X a year, ME 4429 3X a year, ME4422 once a year, ME 4322 2X a year, and ME 4810 2X a year. for example ME 4XXX is offered in X sections each year. A review of transcripts show less than 10% of students currently do NOT meet this new requirement; these tend to be double majors, who are currently obtaining the ME degree without full exposure to high level design.

Overall the new set of requirements is LESS restrictive than the old set, in that students have an additional 1/3 unit engineering elective available. The new requirements will be easier to understand and monitor.

If this motion passes, the ME Program Chart in the catalog will be updated according to these new requirements, and will include some of the newly added courses like ME 3411 and ME 3902.

Implementation Date: Implementation date for this action is the 2020-21 Academic year. We wish to have the changes in the next catalog.

Date: November 7, 2019

To: WPI Faculty

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

Re: Motion to change distribution requirements for Psychological Science Major approved by Psychology Program Faculty and SSPS Faculty on October 9, 2019.

Motion: The Committee on Academic Operation recommends and I move, that the distribution requirements for the Psychological Science major be modified as described below.

Text to be removed is ~~crossed out~~. Text to be added is underlined.

Psychological Science Requirements	Minimum Units
1. Psychological Science (Note 1)	3 <u>4</u>
2. Psych Science and/or Related Courses (Note 2)	4/3
3. Other Social Science (Note 3)	1
4. Basic Science, CS, and/or Engineering (Note 4 <u>Note 3</u>)	5/3
5. Mathematics (Note 5 <u>Note 4</u>)	1
6. Electives (Note 6 <u>Note 5</u>)	1
7. MQP	1

Notes:

1. Must include introductory psychology, social psychology, cognitive psychology, and experimental design
2. Related courses may be additional psychology courses, other social science courses (ECON, ENV, GOV, SD, SOC, STS, DEV), ID 2050, or they may be chosen from a list of psychology-related courses from other departments listed in the undergraduate catalog section for the Psychological Science major.
3. Must include 1/3 unit of biology. Must include 1/3 unit of computer science (except CS 2022 and CS 3043)
4. Must include 2/3 units of calculus and 1/3 unit of statistics
5. The 1 unit of electives must be approved by the Director of the Psychological Science Undergraduate Program.

Rationale: We would like to modify the Psychological Science Requirement by increasing it from 9/3 to 12/3 (or 4 units). The rationale is that we now offer many more classes and would like to better integrate them into the major requirements. In order to increase the Psychological Science Requirement to 12/3, we would like to remove the Other Social Science Requirement (1 unit). We still believe that understanding other social science is important to being a well-rounded psychological science major. Therefore, we will add the other social science courses (ECON, ENV, GOV, SD, SOC, STS, DEV), as well as ID 2050 to be counted in the Psychological Science and/or Related Courses (4/3 unit). Thus, these courses are not being removed from the major, but rather students will have the option of taking them as part of their related course work, if they choose to do so.

Implementation Date: AY20-21

Date: November, 2019

To: WPI Faculty

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

Re: Motion to modify course description: IMGD 5100 Tangible and Embodied Interaction

Motion: The Committee on Graduate Studies and Research recommends and I move that the IMGD 5100 course be modified:

New Course Description:

IMGD 5100. Tangible and Embodied Interaction.

Tangible and embodied interaction sees humans at the center of the designed experience. A number of systems continue to emerge to immerse the body into a system, such as virtual reality, augmented reality, mixed reality, alternative controls in the forms of guitars or cockpits, sewing machines, mobile phones and technologies, and even more. Through a combination of traditional lecture, literature review, and hands-on work, students will learn to critically evaluate different alternatives, build prototype systems, and design comparative evaluations to test the effectiveness of various techniques.

Students will be expected to implement several techniques as part of this course.

Previous Course Description:

IMGD 5100. Immersive Human-Computer Interaction.

Immersive environments are those which give the user the feeling of occupying a space different from their current physical space. They are created in the mind of the user by careful selection of sensory stimuli and support for natural interaction. This course focuses on the design and evaluation of user interfaces that support user immersion in several contexts, including desktop, head-mounted display, large-screen, and mobile situations. Through a combination of traditional lecture, literature review, and hands-on work, students will learn to critically evaluate different alternatives, build prototype systems, and design comparative evaluations to test the effectiveness of various techniques. Students will be expected to implement several techniques as part of this course. (Prerequisites: A demonstrated proficiency to program. A course on traditional human-computer interaction is recommended.)

Rationale: The title and description change reflect the changing nature of IMGD and changing vocabulary used in the field. It also better reflects the breadth of current faculty expertise and interests. The course continues its focus on human-centered design and technologies in IMGD.

Impact on Degree Requirements: No impact on degree requirements. This is still listed as a core course in IMGD.

Resources and Anticipated Instructors: No new resources are required for this course.

Anticipated instructors: Prof. Charlie Roberts, Prof. Gillian Smith.

Implementation Date: Implementation date for this action is the 2020-2021 academic year.

Date: November, 2019

To: WPI Faculty

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

Re: Motion to add a new course: IMGD 5500 Serious and Applied Games

Motion: The Committee on Graduate Studies and Research recommends and I move that the following course be added to the graduate catalog:

New Course Description:

IMGD 5500. Serious and Applied Games.

This course covers methods and analysis for designing, implementing, and assessing games in serious, applied contexts. Often called “serious games” or “applied games”, these are game-based media that teach, engage with social issues, aim to increase empathy, or affect behavioral change. Students will read contemporary literature in the field of serious and applied games, design and implement their own games, and measure the effectiveness of those games in achieving educational or motivational goals.

Rationale: Serious games are being employed across business and social domains because they are seen as offering instant feedback to increase player motivation and engagement. Serious games are common in the following domains: health and healthcare, education, training, policy studies, communitybuilding, and psychological care. This course has previously been offered as a special topics course, and we propose turning it into a permanent course to aid students in course planning, and to give a permanent foundational course for students in the serious games track of the IMGD MS.

Impact on Degree Requirements: No impact on degree requirements.

Resources and Anticipated Instructors: No new resources are required for this course. The special topics version has previously run three times. Anticipated instructors: Prof. Lee Sheldon, Prof. Jennifer deWinter, Prof. Gillian Smith.

Implementation Date: Implementation date for this action is the 2020-2021 academic year.

Date: November, 2019

To: WPI Faculty

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

Re: Motion to modify the existing IMGD MS degree requirements

Motion: The Committee on Graduate Studies and Research recommends and I move that changes to existing courses and degree requirements in the IMGD MS degree be made, as described below:

Proposed Modifications to Graduate Catalog:

Current Catalog Text (p110, 2019-20 graduate catalog)

...IMGD M.S. students undertake a Game Design Studio course (3 credit hours), a set of core courses (9 credit hours) covering various aspects of design, supplemented by two courses (6 credit hours) supporting a focus area (Serious Games, Technical, or *Management*)...

Core Courses

Choose 3 of 4 (9 credits)

IMGD 5100 Immersive Human-Computer Interaction

IMGD 5200 History and Future of Immersive and Interactive Media IMGD 5300

Design of Interactive Experiences

IMGD 5400 Production Management for Interactive Media

Revised Catalog Text (changes bolded and in red)

...IMGD M.S. students undertake a Game Design Studio course (3 credit hours), **a core course relevant to their focus area (3 credit hours) and two other core courses (6 credit hours) covering various aspects of design**, supplemented by two courses (6 credit hours) supporting a focus area (Serious Games, Technical, or **Production** Management).

Focus Area Core Course (3 credit hours)

Technical: IMGD 5100 Serious Games:

IMGD 5500

Production Management: IMGD 5400

Core Course Electives (6 credit hours)

IMGD 5100 **Tangible and Embodied Interaction**

IMGD 5200 History and Future of Immersive and Interactive Media IMGD 5300

Design of Interactive Experiences

IMGD 5400 Production Management for Interactive Media

IMGD 5500 Serious and Applied Games

Rationale: The MS degree was established in 2011 and has not been significantly revised since its inception. These changes address issues identified by the faculty in regard to the preparation of

students in their respective tracks for conducting their required thesis/project work. We propose requiring that students take a core course that is relevant to the track they have selected: IMGD 5100 for Technical Track students, IMGD 5500 for Serious Games students, and IMGD 5400 for Production Management students.

Impact on Degree Requirements: We do not anticipate significant impact on degree requirements. The effective change being made is that students will still take 3 courses, but one must be in their focus area. Students complete the same number of credits to graduate, and IMGD core courses are offered on regular rotation (at least every other year).

Resources and Anticipated Instructors: No additional resources are required for this change.

Implementation Date: Implementation date for this action is the 2020-2021 academic year.

See attached motions for the modification of course title for IMGD 5100, and conversion to permanent catalog from special topics for IMGD 5500.

Date: November 7, 2019

To: WPI Faculty

From: Committee on Academic Operations (prof. Strong, Chair)

Re: Motion to change the title for MU 2631 approved by Department of Humanities & Arts on 09/13/2019.

Motion: The Committee on Academic Operation recommends and I move, that the title and description for Men’s Glee Club – MU 2631 be changed as described below.

Existing title, description and course offering schedule:

Men’s Glee Club

Cat. I The Glee Club is the men's choral ensemble and the oldest student organization on campus. Glee Club performs many styles and periods of the vast repertoire of music for men's ensembles. Several times each year the Glee Club and Alden Voices (Women's Chorale) join forces as the WPI Festival Chorus to perform major works of the repertoire. The Glee Club tours Europe and also performs on tour. Rehearsals are held weekly. Prior singing or music experience is encouraged but not required. Open to all men.

Proposed title, description, and course offering:

Glee Club

Cat. I The Glee Club is one of WPI’s choral ensembles and the oldest student organization on campus. Glee Club performs many styles and periods of the vast repertoire of music featuring tenor and bass voices. Several times each year the Glee Club and Alden Voices (soprano and alto voices) join forces as the WPI Festival Chorus to perform major works of the repertoire. The Glee Club regularly performs on campus, throughout the Worcester area, and takes international and domestic tours. Rehearsals are held weekly. No audition is required. The course is open to all who are interested and sing in the tenor and bass range.

Explanation of Motion: This proposal is to drop the gender term “Men’s” in the title and remove all gender terms throughout the course description.

No other changes will be made to this course, such as content or course offering, beyond the title and description. Therefore, it is not necessary to propose dropping this course and adding a new one.

Rationale: Men’s Glee Club is a choir for anyone who feels comfortable singing with-in the tenor and bass vocal range, welcoming all regardless of gender. The motion to drop the term “Men’s” in the title and description is to represent the inclusive nature of the course.

Impacts on students: This change will provide access and acceptance to students who may have previously felt excluded.

Resource Needs:

Please summarize basic resources needed to deliver this course, including the following:

- No new resources are needed.

Implementation Date: 2020-21 Academic year

Date: November 7, 2019

To: WPI Faculty

From: Committee on Academic Operations (prof. Strong, Chair)

Re: Motion to change the title for MU 2638 approved by Department of Humanities & Arts on 09/13/2019.

Motion: The Committee on Academic Operation recommends and I move, that the title and description for Vocal Performance Lab – MU 2638 be changed as described below.

Existing title, description and course offering schedule:

Vocal Performance Lab

Cat. I The Vocal Performance Lab is a performance practice oriented chamber vocal ensemble. This ensemble explores specific stylistic techniques as pertains to the music of the Renaissance, Baroque, twentieth century, jazz, and extended vocal techniques (electronic, digital and experimental). The ensemble meets weekly. Students are expected to be of the highest vocal caliber and should possess advanced sight-reading techniques. Open to both men and women. Permission of the instructor is necessary to register.

Proposed title, description, and course offering:

Chamber Choir

Cat. I The Chamber Choir is WPI's smaller, audition-based, choral ensemble. This ensemble explores specific stylistic techniques as pertains to the music of the Renaissance, Baroque, twentieth century, jazz, and extended vocal techniques (electronic, digital and experimental). The ensemble meets weekly. Students are expected to be of the highest vocal caliber and should possess advanced sight-reading techniques. Open to all who are interested. Permission of the instructor is necessary to register.

Explanation of Motion: This proposal is to change the title of "Vocal Performance Lab" to "Chamber Choir," and make minor updates to the course description.

No other changes will be made to this course, such as the course offering, beyond those listed above. Therefore, it is not necessary to propose dropping this course and adding a new one.

Rationale: The title "Vocal Performance Lab" misrepresents the content of the course, since the course is a choir and not a lab. The title has additionally caused confusion amongst students with the "Vocal Performance Practicum – HU 3910, D11" and other performance practicums on campus. The title change to "Chamber Choir" will alleviate this confusion and provide a title that properly relates to the content of the course.

Impacts on students: This change will provide clarity for students interested in the different music offerings at WPI.

Resource Needs:

Please summarize basic resources needed to deliver this course, including the following:

- No new resources are needed.

Implementation Date: 2020-21 Academic year

Date: November 7, 2019

To: WPI Faculty

From: Committee on Academic Operations (prof. Strong, Chair)

Re: Motion to change the title for MU 2632 approved by Department of Humanities & Arts on 09/13/2019.

Motion: The Committee on Academic Operation recommends and I move, that the title and description for Alden Voices – MU 2632 be changed as described below.

Existing title, description and course offering schedule:

Alden Voices

Cat. I Alden Voices is the women's choral ensemble. Alden Voices performs many styles and periods of the vast repertoire of music for women's ensembles. Several times each year Alden Voices and the Men's Glee Club join forces as the WPI Festival Chorus to perform major works of the repertoire. Alden Voices performs on tour as well as performing on campus. Rehearsals are held weekly. Prior singing or music experience is encouraged but not required. Open to all women.

Proposed title, description, and course offering:

Alden Voices

Cat. I Alden Voices is one of WPI's choral ensembles and also functions as a student organization on campus. Alden Voices performs many styles and periods of the vast repertoire of music featuring soprano and alto voices. Several times each year the Alden Voices and the Glee Club (tenor and bass voices) join forces as the WPI Festival Chorus to perform major works of the repertoire. Alden Voices regularly performs on campus, throughout the Worcester area, and takes international and domestic tours. Rehearsals are held weekly. No audition is required. The course is open to all who are interested and sing in the soprano and alto range.

Explanation of Motion: This proposal is to remove all gender terms throughout the course description.

No other changes will be made to this course, such as content or course offering, beyond the course description. Therefore, it is not necessary to propose dropping this course and adding a new one.

Rationale: Alden Voices is a choir for anyone who feels comfortable singing with-in the soprano and alto vocal range, welcoming all regardless of gender. The motion to drop the use of female gender in the description is to represent the inclusive nature of the course.

Impacts on students: This change will provide access and acceptance to students who may have previously felt excluded.

Resource Needs:

Please summarize basic resources needed to deliver this course, including the following:

- No new resources are needed.

Implementation Date: 2020-21 Academic year

Note: Cat. II to Cat. I must go to full faculty for a vote. Cat. I to Cat. II only needs to go to CAO.

Date: November, 2019

To: WPI Faculty

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

Re: Motion to modify course description: IMGD 5100 Tangible and Embodied Interaction

Motion: The Committee on Graduate Studies and Research recommends and I move that the IMGD 5100 course be modified:

New Course Description:

IMGD 5100. Tangible and Embodied Interaction.

Tangible and embodied interaction sees humans at the center of the designed experience. A number of systems continue to emerge to immerse the body into a system, such as virtual reality, augmented reality, mixed reality, alternative controls in the forms of guitars or cockpits, sewing machines, mobile phones and technologies, and even more. Through a combination of traditional lecture, literature review, and hands-on work, students will learn to critically evaluate different alternatives, build prototype systems, and design comparative evaluations to test the effectiveness of various techniques.

Students will be expected to implement several techniques as part of this course.

Previous Course Description:

IMGD 5100. Immersive Human-Computer Interaction.

Immersive environments are those which give the user the feeling of occupying a space different from their current physical space. They are created in the mind of the user by careful selection of sensory stimuli and support for natural interaction. This course focuses on the design and evaluation of user interfaces that support user immersion in several contexts, including desktop, head-mounted display, large-screen, and mobile situations. Through a combination of traditional lecture, literature review, and hands-on work, students will learn to critically evaluate different alternatives, build prototype systems, and design comparative evaluations to test the effectiveness of various techniques. Students will be expected to implement several techniques as part of this course. (Prerequisites: A demonstrated proficiency to program. A course on traditional human-computer interaction is recommended.)

Rationale: The title and description change reflect the changing nature of IMGD and changing vocabulary used in the field. It also better reflects the breadth of current faculty expertise and interests. The course continues its focus on human-centered design and technologies in IMGD.

Impact on Degree Requirements: No impact on degree requirements. This is still listed as a core course in IMGD.

Resources and Anticipated Instructors: No new resources are required for this course.
Anticipated instructors: Prof. Charlie Roberts, Prof. Gillian Smith.

Implementation Date: Implementation date for this action is the 2020-2021 academic year.

Date: November, 2019

To: WPI Faculty

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

Re: Motion to add a new course: IMGD 5500 Serious and Applied Games

Motion: The Committee on Graduate Studies and Research recommends and I move that the following course be added to the graduate catalog:

New Course Description:

IMGD 5500. Serious and Applied Games.

This course covers methods and analysis for designing, implementing, and assessing games in serious, applied contexts. Often called “serious games” or “applied games”, these are game-based media that teach, engage with social issues, aim to increase empathy, or affect behavioral change. Students will read contemporary literature in the field of serious and applied games, design and implement their own games, and measure the effectiveness of those games in achieving educational or motivational goals.

Rationale: Serious games are being employed across business and social domains because they are seen as offering instant feedback to increase player motivation and engagement. Serious games are common in the following domains: health and healthcare, education, training, policy studies, communitybuilding, and psychological care. This course has previously been offered as a special topics course, and we propose turning it into a permanent course to aid students in course planning, and to give a permanent foundational course for students in the serious games track of the IMGD MS.

Impact on Degree Requirements: No impact on degree requirements.

Resources and Anticipated Instructors: No new resources are required for this course. The special topics version has previously run three times. Anticipated instructors: Prof. Lee Sheldon, Prof. Jennifer deWinter, Prof. Gillian Smith.

Implementation Date: Implementation date for this action is the 2020-2021 academic year.

Date: November, 2019

To: WPI Faculty

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

Re: Motion to modify the existing IMGD MS degree requirements

Motion: The Committee on Graduate Studies and Research recommends and I move that changes to existing courses and degree requirements in the IMGD MS degree be made, as described below:

Proposed Modifications to Graduate Catalog:

Current Catalog Text (p110, 2019-20 graduate catalog)

...IMGD M.S. students undertake a Game Design Studio course (3 credit hours), a set of core courses (9 credit hours) covering various aspects of design, supplemented by two courses (6 credit hours) supporting a focus area (Serious Games, Technical, or *Management*)...

Core Courses

Choose 3 of 4 (9 credits)

IMGD 5100 Immersive Human-Computer Interaction

IMGD 5200 History and Future of Immersive and Interactive Media IMGD 5300

Design of Interactive Experiences

IMGD 5400 Production Management for Interactive Media

Revised Catalog Text (changes bolded and in red)

...IMGD M.S. students undertake a Game Design Studio course (3 credit hours), **a core course relevant to their focus area (3 credit hours) and two other core courses (6 credit hours) covering various aspects of design**, supplemented by two courses (6 credit hours) supporting a focus area (Serious Games, Technical, or **Production** Management).

Focus Area Core Course (3 credit hours)

Technical: IMGD 5100 Serious Games:

IMGD 5500

Production Management: IMGD 5400

Core Course Electives (6 credit hours)

IMGD 5100 **Tangible and Embodied Interaction**

IMGD 5200 History and Future of Immersive and Interactive Media IMGD 5300

Design of Interactive Experiences

IMGD 5400 Production Management for Interactive Media

IMGD 5500 Serious and Applied Games

Rationale: The MS degree was established in 2011 and has not been significantly revised since its inception. These changes address issues identified by the faculty in regard to the preparation of

students in their respective tracks for conducting their required thesis/project work. We propose requiring that students take a core course that is relevant to the track they have selected: IMGD 5100 for Technical Track students, IMGD 5500 for Serious Games students, and IMGD 5400 for Production Management students.

Impact on Degree Requirements: We do not anticipate significant impact on degree requirements. The effective change being made is that students will still take 3 courses, but one must be in their focus area. Students complete the same number of credits to graduate, and IMGD core courses are offered on regular rotation (at least every other year).

Resources and Anticipated Instructors: No additional resources are required for this change.

Implementation Date: Implementation date for this action is the 2020-2021 academic year.

See attached motions for the modification of course title for IMGD 5100, and conversion to permanent catalog from special topics for IMGD 5500.

Date: November 7, 2019

To: WPI Faculty

From: Committee on Information Technology Policy (J. Cocola, Chair)
Committee on Governance (Prof. Gaudette, Chair)

Re: Motion to establish a WPI Research Data Retention and Maintenance Policy

Motion: The Committee on Governance and the Committee on Information Technology Policy recommend, and we move that a new WPI Research Data Retention and Maintenance Policy (included as an attachment to this motion) be adopted by the WPI faculty.

Rationale: Currently WPI has no formal research data retention policy in place. However, researchers have very specific obligations to record, maintain and retain research records, and to make those records available for grant monitoring and auditing purposes, as well as to enable investigators and the University to respond to questions of research integrity and stewardship. At the same time, the University and its researchers are accountable for ensuring the integrity of, and access to, research data and materials and documents.

The purpose of the proposed Policy is to have in place systems and procedures for maintaining essential Research data in order to protect researchers, students, trainees and the University. The Policy ensures accountability in sponsored research projects and research integrity in all research conducted at, or under the auspices of, the University. This Policy assures that research data are appropriately recorded and archived, and are available for review under appropriate circumstances.

Research data is at the very core of research quality and integrity, and it is vital that robust research data management policies and procedures are in place to ensure that research conducted by and under the auspices of WPI meets the highest standards to comply with legislative, regulatory, audit, funding body, partner (stakeholder) and internal requirements. The proposed policy underlines the University's commitment to support research integrity, by highlighting the importance of the management of research data to good governance and best practice.

Specifically, the proposed policy clarifies that all datasets required by faculty which are kept on WPI research storage arrays will be maintained indefinitely unless deleted by faculty or students with access to the data. It also ensures:

- *Compliance with the terms of sponsored project agreements*
- *The rights of researchers to their data*
- *Confidentiality of research data, where appropriate*
- *Compliance with applicable state and federal laws and regulations*

WPI Research Data Retention and Maintenance Policy

1. Purpose

The University has a responsibility to support WPI researchers in meeting obligations to record, maintain and retain research records, and to make those records available for grant monitoring and auditing purposes. The University and its researchers are accountable for ensuring the integrity of, and access to, research data and materials and documents. This responsibility continues even after researchers who originally collected those data and materials have left the University.

The purpose of this Policy is to clarify the role of IT Services in providing systems and procedures for maintaining essential Research data in order to protect researchers, students, trainees and the University. This Policy ensures that research data are appropriately recorded and archived, and are available for review under appropriate circumstances.

IT Services will ensure that all datasets required by faculty which are kept on WPI research storage arrays administered by IT Services will be maintained permanently unless deleted by faculty or students with access to the data. Microsoft OneDrive is not a long-term storage option for research data since it is backed up by Microsoft only for a 30-day period.

2. Policy Scope

This policy applies to all research data stored in WPI research storage arrays that are administered by IT Services. This policy affects both externally and internally funded research since WPI's legal responsibilities with respect to access and retention of data generated by research extend to research conducted with WPI's own funds, as well as to research conducted with funds received by WPI from federal or other sources.

This Policy does not address ownership of intellectual property, which is governed by WPI's Intellectual Property Policy, which is available at <https://www.wpi.edu/about/policies/intellectual-property>.

3. Audience

All Principal Investigators (PIs), all WPI faculty members, staff members, students, and all other members of WPI's research community.

4. Research Data and Materials: Definitions

Research Data include recorded, tangible, or intangible research information regardless of form or the media on which it may be recorded that is created or collected in the process of performing research, whether supported by University resources or by external funders.

Research Data and Materials include, but are not limited to, the following: computer software (computer programs, computer databases, and documentation thereof); materials such as unmodified and modified biological specimens; original or modified biological and

environmental samples, gels, spectra, cell lines, reagents, protocols; new or modified chemical entities; laboratory notebooks and notes of any type; materials (e.g., applications, outreach/advertising materials, consent forms, survey routines/questionnaires and debriefing scripts) submitted to and/or approved by WPI's Institutional Review Board (IRB) or other research oversight committees; photographs; films; audio recordings; digital images; algorithms; graphs; charts; numerical raw experimental results; instrumental outputs; other deliverables under sponsored agreements; technical reports including statistics, findings, conclusions, other deliverables under sponsored agreement; and any other records of, or in any form that could be used for, reconstruction and evaluation of reported or otherwise published results of research.

The WPI research storage arrays include all the storage associated with systems administered by the Academic and Research Computing team within IT Services at WPI.

5. Administration

The Chief Information Officer and the Executive Director of Research Computing are the individuals responsible for the administration of this Policy and the implementation of relevant processes and procedures.

Attached as an Appendix to this Policy is a Data Retention Schedule that is the initial maintenance, retention and archiving schedule for electronic records of Worcester Polytechnic Institute.

6. Policy Responsibilities

WPI's responsibilities with respect to research data include, but are not limited to:

1. complying with the terms of sponsored project agreements.
2. ensuring the appropriate use of project resources.
3. protecting the rights of researchers, including, but not limited to, their rights to access data from research in which they participated.
4. securing intellectual property rights.
5. facilitating the investigation of charges, such as research misconduct or conflict of interest.
6. maintaining confidentiality of research data, where appropriate.
7. complying with applicable state and federal laws and regulations.

The PI's responsibilities with respect to research data include, but are not limited to:

1. ensuring proper management and retention of research data in accordance with this Policy.
2. establishing and maintaining appropriate procedures for the protection of research data and other essential records, particularly for long-term research projects.
3. ensuring compliance with program requirements.
4. maintaining confidentiality of research data, where appropriate.
5. complying with applicable state and federal laws and regulations.

7. Retention

WPI's IT Services is responsible for ensuring that research data on WPI research storage arrays is retained for a minimum of three years after the final report for the project period has been submitted or, for non-sponsored projects, a minimum of three years after the project has ended and, if applicable, the budget reconciled. The PIs and owners of the data shall retain control over this data retention and may choose to delete data in accordance with appropriate research practices.

In addition, any of the following circumstances may justify longer periods of retention:

1. Research data and other project records must be kept for as long as may be necessary to protect any intellectual property resulting from the work.
2. If litigation or other dispute resolution, claims, financial management review, or audit related to the research project is started before the expiration of the three-year period described above, or if such actions are commenced after the three-year period but before the relevant data and records have been destroyed, then the research data and other project records must be retained until all such litigation/dispute resolution, claims, financial management review, or audit findings involving the records have been resolved and final action has been taken.
3. Data retention may be extended to facilitate internal audits and investigations.
4. If a student is a contributor to the research project, then the research data and other project records must be retained at least until the student's degree is awarded (or the student otherwise leaves WPI) and any resulting papers are published.
5. If the research is funded by an award to or through a contract with WPI that includes specific provision(s) regarding ownership, retention of, and access to technical data, then the provision(s) of that agreement will supersede this Policy.
6. Research data from human participant research studies must be maintained in a manner consistent with the IRB guidelines.
7. If other regulations, federal oversight, sponsor policies or guidelines, journal publication guidelines, or other University policies require longer retention, then all applicable sources must be reviewed, and the research data must be kept for the longest period of time applicable.

In accordance with research best practices, WPI encourages faculty members, staff members, and students to retain only the data that is needed, to periodically review all the data collected, and discard the information that is no longer necessary to retain. The Academic Research Computing (ARC) team will provide reports for the faculty and students to quickly assess the location, size and type of files under their jurisdiction.

8. Approval and Revisions

Approved by Committee on Information Technology Policies (CITP) on October 9, 2019

Approved by the Committee on Governance (COG)
This program will be reviewed and updated as needed, at least annually.

Appendix - Data Retention Schedule

Functional Area	Data Class	Record Types	Retention	Backup and Archive
Research	Non-Sensitive	Unstructured data, data destined for public domain.	*Permanent	Up to 6 years or up to 3 years after the final report to Granting agencies (barring any litigation or research misconduct)
	Sensitive	Research data that is NOT identifiable or protected under a Confidentiality Agreement. Research awards notifications (time sensitive); RFP processes (time sensitive);	Permanent	Up to 6 years or as required by granting agencies or Federal and State laws.
	Confidential	Identification Numbers (Social Insurance Number (S.I.N.), Award Number); Human participant information (demographic and personal); Unpublished research information after it has transitioned to administrators (grant applications, grant proposals); Research data that is identifiable (i.e. includes participant identifiers); Information which could affect patent processes, proprietary data, and intellectual property; Contracts and agreements; CVs.	Permanent	Up to 6 years or as required by granting agencies or Federal and State laws.

	Data under DUA (data usage agreement)	Collaboration with External companies, export control (ITAR) which might require the data to be deleted at the completion of the project	DUA Specific	DUA Specific
	Intellectual Property	Intellectual Property & Trade Secrets	Life of trade secret	Up to 6 years or up to 3 years after the final report to Granting agencies (barring any litigation or research misconduct)

*(Recommended to remain on the main storage arrays. Should not be deleted)

Date: November 7, 2019

To: WPI Faculty

From: Committee on Information Technology Policy (Prof. Cocola, Chair)
Committee on Governance (Prof. Gaudette, Chair)

Re: Motion to establish an Academic and Research Computing (ARC) User Account Policy

Motion: The Committee on Governance and the Committee on Information Technology Policy recommend, and we move that a new Academic and Research Computing (ARC) User Account Policy (included as an attachment to this motion) be adopted by the WPI faculty.

Rationale:

WPI currently provides many high performance computational and data storage resources for the purpose of supporting legitimate academic and research activities at the University. Despite the importance of these resources and their widespread use among WPI faculty members, staff members, students, and other members of WPI's academic and research community, WPI currently has no formal ARC user account policy in place. The absence of such a policy has created confusion among users on all matters ranging from establishing to properly using accounts. The proposed policy (included as an attachment to this motion) eliminates this confusion, as described below.

The proposed policy outlines the proper use of these computational and data storage resources and requires all users to familiarize themselves with the procedures and processes described in the policy. The policy clearly describes the procedures by which academic and research accounts are and should be approved, created, maintained, secured, and removed.

The proposed policy also articulates ten principles of accountability to which all account-holders must adhere. It clearly describes conduct and usage that is considered to abuse ARC resources and outlines the steps that will be taken when such abuses are discovered.

Academic & Research Computing User Account Policy

1. Purpose

The purpose of this policy is to ensure appropriate use of WPI Academic & Research Computing (ARC) user accounts. All users of ARC resources (referred to herein as "users") must read and understand the WPI Academic & Research Computing policy outlined below before using any computing or storage resources provided by ARC.

All users of ARC resources are also required to read and understand the [WPI Acceptable Use Policy \(AUP\)](#), as well as other (<https://www.wpi.edu/about/policies>) institutional security policies governing use of data.

2. Policy

An Academic & Research Computing (ARC) user account provides access to various ARC computer systems, networks, applications, data, and/or other technology assets at WPI. By using any ARC resources, the user agrees to abide by the following usage policy, and to use ARC resources in a responsible and ethical manner. Violations of the ARC usage policy or WPI Technology Policies can result in removal of access to ARC resources, the reporting of suspicious activities to the appropriate authorities, and disciplinary action taken according to the appropriate disciplinary policy and

This Policy, the WPI Acceptable Use Policy and other IT policies and procedures constitute the base level of policies, procedures, and security rules around ARC resources. Additional requirements, policies, procedures, and security rules governing the use of specific ARC resources may exceed those found in the WPI AUP or IT policies and procedures.

3. Audience

All Principal Investigators ("PIs"), all WPI faculty members, staff members, students, and all other members of WPI's academic and research community.

4. Definitions

- Academic & Research Computing (ARC) is a division of Information Technology that supports Academic and Researching computing needs at WPI.
- An ARC Resource Account is an account or access to specific resources or data on an ARC managed system.
- WPI Active Directory System (AD) is a system that maintains credentials for access to resources
- A sponsor is a WPI Principal Investigator (PI), faculty member, or staff member who has the authority to grant access to specific ARC resources.

5. Policy Implementation

Account Approval

Accounts and access to ARC resources are “sponsored” by an appropriate Research PI, faculty and/or staff member. Account and access requests are made by, or under the direction of, the sponsor by emailing arcaccount@wpi.edu. All account requests are reviewed by the ARC team, and resource requests are granted on an "as needed" basis. A sponsor can only grant access to those resources and data for which they have privilege to do so.

Account Creation

- A user identifier (username) and an associated password are required of all ARC users. Usernames and passwords are managed through the WPI Active Directory (AD) system, and must conform to password requirements (length, strength, duration between changes) enforced by WPI.
- An ARC Resource Account will be provided based on the WPI AD credentials and may be used only by the person who registered for the account.
- Each ARC account holder is responsible for keeping their login credentials secret. These credentials include, but are not limited to, passwords and private SSH keys.
- Users are not permitted to share account credentials with anyone under any circumstances.

The ARC systems provide many mechanisms for sharing data and compute resources with collaborators without the necessity of account sharing.

Account Maintenance

- Passwords must be periodically updated consistent with WPI policies.
- Sponsors must verify approval for all ARC accounts at least once every 365 days. If a sponsor has not verified approval for an account within this time period, ARC will revoke approval. In such a case, the sponsored account holder must either obtain approval or select a new sponsor to continue using ARC resources.
- Users should promptly inform ARC of any changes in contact information.

Account Removal

- When a user leaves the University, their WPI credentials are deactivated and access to ARC resources are terminated.
- Student accounts may be deactivated and/or students may have their access to specific resources removed upon request by the student’s faculty advisor or account sponsor.
- Any and all accounts may be suspended whenever a security event occurs in which resources may be compromised.

Account Security

- Research Data that is classified as “Restricted Use” under the [Data Classification and Usage Policy](#) must be encrypted at rest and in transit, and is subject to all other requirements described in that policy.
- Users must immediately notify infosec@wpi.edu and the ARC team, archelp@wpi.edu, immediately upon becoming aware that any of the accounts used to access ARC resources have been compromised.
- Upon actual or suspected loss, disclosure, or compromise of the user's password, account holders must immediately notify archelp@wpi.edu and infosec@wpi.edu.

6. Accountability

Users granted access to ARC resources must adhere to the following principles:

- Principal Investigators are responsible for ensuring that WPI policies, procedures, and security rules are followed for their research teams and organizations, and for ensuring that ARC users working under their supervision fulfill these responsibilities.
- Users are accountable for their actions. Violations of WPI, IT, or ARC policies, procedures, and security rules may result in loss of resource access and/or applicable administrative sanctions or legal actions.
- The proper use of the tools each computer system provides, and the confidentiality of any sensitive information is entrusted to users.
- ARC resources must not be used for illegal or malicious purposes such as harassment, disrupting communications or services, or unauthorized monitoring of communications. ARC resources may not be used for crypto currency mining, which is inconsistent with the university’s computing goals and non-profit status.
- Users must refrain from unethical use of ARC resources, including unauthorized use of computer accounts and resources assigned to others, use of computing facilities for private business or political purposes or private gain, academic or scientific dishonesty, or violation of software license agreements.
- Users must respect the confidentiality and privacy of individuals whose records are accessible to the user in accordance with ARC/WPI policy, WPI ethical standards, and state and federal laws and regulations.
- Users should immediately report any suspected breach of security, policy violation, or suspicious activity to infosec@wpi.edu and your supervisor, PI, or sponsor.
- No attempt should be made to subvert or circumvent any system security features.
- No attempt should be made to subvert or circumvent any system that allocates resources.

Accounts may be terminated by ARC/WPI staff for failure to follow these principles.

Abuse of ARC resources

ARC resources are abused by any user who intentionally negatively impacts any ARC resource by:

- limiting or degrading the resources available for other users.
- exhausting or using placing an undue demand on shared resources.
- circumventing established controls.

If a user is found abusing ARC resources in any way, the following steps may be taken:

- After the first offense, the user may be directed to the appropriate tutorials.
- After the second offense, an email warning may be sent to the user. ^[SEP]Computational simulations or system access may be suspended until the user meets or corresponds with ARC staff regarding the incident.
- After the third offense, the user's access to ARC resources may be suspended indefinitely.

7. Enforcement

Any person that violates any of the measures found in this policy will be subject to the same disciplinary actions outlined in the Acceptable Usage Policy and [Code of Conduct](#) for students.

8. Approval and Revisions

Policy Category: Academic and Research Computing

Policy Approved By: Committee on Information Technology Policy (CITP) on October 9, 2019

Policy Approved By: Committee on Governance (COG)

Policy Reviewed Annually By: Exec. Director Academic and Research Computing

Related University Policies: AUP Data Classification and Usage Policy

Last Modified: October 9, 2019