WORCESTER POLYTECHNIC INSTITUTE
April 12, 2018

To: The WPI Faculty

From: Mark Richman
        Secretary of the Faculty

The eighth Faculty meeting of the 2017-2018 academic year will be held on **Thursday**, **April 12, 2018** at **3:15 pm** in **Olin Hall 107**, with refreshments at 3:00 pm**.**

1. Call to Order   M. Richman

    - Approval of the Agenda
    - Consideration of the Consent Agenda
      (including Minutes from 3-15-18)

2. President's Report   L. Leshin

3. Provost's Report   B. Bursten

4. Committee Report

    Committee on Governance (COG) – for discussion, only   M. Richman
    - [Draft] WPI Sexual Misconduct Policy

5. Committee Business

    Committee on Tenure and Academic Freedom (CTAF)   J. Rulfs
    - Motion to modify procedures for annual reviews of
      non-tenured, tenure-track faculty members

    Committee on Academic Policy (CAP)   M. Humi
    Committee on Graduate Studies and Research (CGSR)   K. Troy
    - Motion to modify the current student course report forms and   J. Rulfs
      to approve on-line distribution of the modified form

    Committee on Graduate Studies and Research (CGSR)   K. Troy
    - Motion to modify policies related to Academic Standards
      for graduate students

6. New Business

7. Announcements

8. Adjournment to   *the* q̌ʋorum   in Higgins House

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6. Adjournment

Detail:

1. Call to Order

The seventh Faculty meeting of the 2017-2018 academic year was called to order at 3:25 pm in OH 107 by **Prof. Richman** (ME). The meeting agenda and the consent agenda (including minutes from February 13, 2018) were approved as distributed.

Prof. Richman (ME) announced that the deadline to fill out the ballots for CTAF, COAP, and COG is March 21, and he encouraged all eligible faculty members to participate in the elections. After those elections are concluded, COG will put together the ballots for all remaining standing committees. Prof. Richman also pointed out that this year's Faculty Convocation would be held on April 27, which for the first time would include the Chairman's Prize winner and would be combined with the Trustees' Faculty Recognition Awards Ceremony. Finally, he encouraged all in attendance to reconvene at the Quorum to socialize after the meeting.

2. Provost's Report

Provost Bursten thanked Prof. Rulfs (Chair, CTAF), Prof. Datta (Chair, COAP) and all other members of CTAF and COAP for their hard work in the tenure and promotions processes this year. He indicated that the Global Impact Division Implementation Advisory Group had had two open listening sessions and was at work on a proposal for the faculty to consider. Provost Bursten reflected on the stimulating University Lecture entitled "Technology and Humanities: Building the Leaders of the Future" given by author Scott Hartley on March 14. Finally, he announced that eight faculty searches had been concluded so far this year.

3. Memorial Resolution

Prof. Wills (CS) read a Memorial Resolution for Prof. Charles (Chuck) Rich (CS), who passed away on January 3, 2018. (See **Addendum #1** on file with these minutes.) The resolution **passed** and a moment of silence was observed in Prof. Rich's honor.

4. Committee Reports

Committee on Governance

Prof. Richman (ME) and **Prof. Gaudette** (BME), for the Committee on Governance (COG), presented a combined report on WPI's TTT/NTT Credit-Delivery Balance and Prospects for Faculty Growth.

As required by the Faculty Handbook, **Prof. Richman** presented data concerning faculty populations and credit delivery. (See **Addendum #2** on file with these minutes.) From 2004-05 to 2016-17: the total number of credits delivered increased by 61 percent; the number of TTT faculty members increased by 13 percent (from 217 to 245); the number of FTE NTT faculty members increased by 139 percent (from 75 to 178); and the fraction of the credits delivered by TTT faculty members decreased from 65 percent to 49 percent. As a snapshot in time, in 2016-17, TTT faculty members delivered 47.1 percent of the undergraduate credits and 61.1 percent of the graduate credits. There is considerable variation in the percentage of credits delivered by TTT faculty members when broken down by division (i.e. in 2016-17: 45.9 percent Arts and Sciences; 59.5 percent in Engineering; 57.0 percent in Business) and by department. In anticipation of the data to be collected for 2017-18, from fall 2016 to fall 2017 the number of FTE undergraduate students increased by 3.6 percent, the number of graduate students increased by 0.4 percent, the number of TTT faculty increased by 3.3 percent, and the number of FTE NTT faculty members increased by 2.2 percent.

Prof. Gaudette built on the theme that the TTT faculty had not grown at a rate commensurate with WPI's overall growth, and presented an outline of three strategies to double down on our undergraduate strengths, elevate our research and graduate programs, and enhance our reputation. (See **Addendum #3** on file with these minutes.) First, strategically grow the TTT faculty (to perhaps 300 by 2023) by emphasizing to prospective faculty hires WPI's balance between teaching and research, and by making clear that our expectations for scholarship and our start-up packages are consistent with that balance. This should involve investing in our successful programs and only in areas that are broadly accepted by the faculty. Second, invest strategically in faculty development opportunities in all three areas: teaching; research; and service. This will involve providing leadership appointments for faculty members, establishing an effective mid-career mentoring system, providing release time to faculty who perform significant service and leadership roles, and providing incentives for faculty members to serve as advisors and directors in our global projects programs. And third, focus on faculty retention by rewarding outstanding faculty achievement in both research and teaching, provide funds for developing research programs, provide competitive salaries, and allow for leadership opportunities at WPI.

Prof. Wills (CS) encouraged both faculty members and the Provost to expand upon only using credit hours delivered in consideration of the number of tenure-track and non-tenure-track faculty. He was also concerned that current space limitations would make it difficult to hire additional faculty members of any type. **Prof. Gaudette** suggested that there were innovative ways faculty members could share lab space and equipment that would create better collaborations, less expensive start-up packages, and more efficient use of space.

Prof. Demetriou (ME) estimated that it would cost roughly $10M to grow the faculty to its required size, and asked where those resources would come from. **Prof. El-Korchi** (CEE) asked the Provost to provide his insights. **Provost Bursten** repeated the three strategies in Prof. Gaudette's COG presentation. He expressed the view that the primary limitation to growth is space, but that we have been competing effectively against top universities for top faculty talent. Provost Bursten did not see a clear stream of revenue that would allow us to grow the faculty to the size suggested in the COG presentation without growing the student population. **Prof. Richman** pointed out that at the March Faculty meeting, a FAP report indicated that we were overspending on administrative costs and underspending on instructional costs, and according to the report correcting the imbalance would involve a shift of roughly $3.8M from administrative to instructional spending. So, in his view it was important not to have today's discussion about costs in isolation from the FAP conclusion last month.

Prof. Gericke (CBC) agreed that WPI must increase the number of tenured and tenure-track faculty. In particular, the number of CBC TTTs should increase from 12 to 15 or 16. Rather than focus on the symptoms of our problems, he thought we should decide what type of university we aspire to be. **Prof. Richman** pointed out that the presentation of data is the first step in identifying problems. **Prof. Gericke** thought that credits delivered was an inadequate measure of faculty deployment, and pointed out that the jump in credits delivered by TTTs in CBC from 36 percent in 2015-16 to 49 percent in 2016-17 was due only to a bookkeeping change in how credits were associated with freshman labs. He hoped that we as a faculty group could discuss our goals for the institution and deploy our faculty accordingly. **Prof. Gaudette** pointed out that the annual COG report on credits delivered given today is mandated in the Faculty Handbook, and that the relatively flat line growth of the TTTs was clear. He also explained that the discussion COG was bringing to the faculty was based on the assumption that the role of the TTTs was to be actively involved in both teaching and research. **Prof. Richman** explained that in 2011 we had reached a consensus on the roles of the TTTs and the NTTs, and while it could always be revisited, it was not true that the discussion had not taken place. He also explained that, at the time, we had carefully decided that credits delivered was the correct measure of *overall institutional* involvement in delivering our academic programs, but that it should not be used at an individual level to measure individual teaching loads. He thought it was clear that in order both to reach the institutional goal of credits delivered and also to allow TTT faculty members to teach their share of small classes and advise projects, we need more TTT faculty members.

Prof. Boudreau (HUA) thought we could all agree on the goal of providing a distinctive education at WPI and the need for more faculty of all types. She wanted to know why, from what she had heard, the upcoming year was going to be particularly financially lean, whether the next few years would be the same, and what indications there were for the number of faculty lines to be approved in that period of time. **Provost Bursten** replied that the lack of

space was more limiting than the lack of resources. He indicated that within a fixed budget for start-up packages, choices could be made that would affect the number of faculty searches we approve. New buildings have greater impact on the budget than do new hires. His hope is that the budget outlook will be better next year, but that he would defer to CFO Solomon.

Prof. Sullivan (ME) was disappointed that despite the fact that COG continues to give the credit delivered presentation every year, we have not seen any significant increase in TTTs. He suggested that, as an additional tool, we might obtain corresponding credit delivery data from our peers and our aspirational peers to see if we are losing ground. He also thought that it might now be possible to move many NTT faculty members to tenure-track lines. **Prof. Gaudette** thought that the Administration should make the hiring of TTT faculty its number one priority, and suggested that a resolution from the faculty to that effect might be needed to deliver that message. The data presented today clearly indicates that we are changing without a plan, and the question is who we want to be.

Committee on Governance
Prof. Richman (ME), for the Committee on Governance, presented a proposed new WPI Sexual Misconduct Policy (See **Addendum #4** on file with these minutes.). He emphasized that COG was very interested in receiving input from the faculty in order to revise the draft before it is brought back to the faculty again. He explained the iterative process used to formulate the current draft involving a working group of three faculty members and three Trustees, University Counsel, the Committee on Governance, and the faculty community. He outlined the needs addressed by the proposed policy, especially the need to have a single policy for the University by reconciling the differences between the Sexual Misconduct Policy approved by the Trustees in December 2013 and the policy approved by the Faculty in January 2014. On March 1, 2018, the current draft was approved by the Trustees as an interim policy and will be in effect until May 2018, at which time the Board will vote on a faculty-approved version of the policy.

Prof. Richman explained the three phases of a sexual misconduct case: an initial assessment by the Title IX Coordinator to determine whether to proceed further; an investigation phase carried out by one or more appointed investigators to collect the facts without rendering any judgment; and a judicial phase in which a panel of five members (from a pool of trained faculty and staff members) would read the investigative report, interview witnesses, and settle by majority vote the question of responsibility and determine the sanction.   Finally, there is also an appeals process for either party in any case, and there is a special appeals process for any faculty member whose sanction was dismissal.

Prof. Dougherty (CS) was concerned about situations in which it wasn't clear whether a case fell under the sexual misconduct policy or the more general faculty misconduct policy, and wanted to make sure that the respondent had a voice in the initial assessment and the determination the applicable policy. **Prof. Doughtery** was also concerned that in the policy the term "sexual misconduct" was defined only by an inexhaustive list of examples.

Prof. Hakim (ECE) made the general observation that the draft policy was weaker than the sexual misconduct policy in the current Faculty Handbook. He was concerned that the draft policy included no statement about the need for confidentiality. He also was not sure if the policy covered sexual misconduct by administrators, and wanted to know about special adjustments that would have to be made within the policy if the respondent were a Dean, or the Provost, or the President.   **Prof. Richman** explained that under the policy non-academic administrators were treated as staff members, and academic administrators were treated as faculty members. **Prof. Hakim** suggested that an independent attorney evaluate the policy on behalf of the faculty. He also asked how we might balance the use of nondisclosure agreements against our moral responsibility to share certain information more widely.

Prof. Demetry (ME) observed that the issue of "inappropriate relationships" was particularly nuanced, and hoped that some guidance in the policy for teaching assistants, in particular, could be added.   **Prof. Richman** explained that the language under "inappropriate relationships" in the draft is taken from a current WPI Human Resources policy, and is a general statement about the need for both parties to be aware of any imbalance in workplace authority when engaging in a sexual relationship. This is quite permissive in that it does not even prohibit

relationships between undergraduate students and either faculty or staff members. However **Prof. Richman** emphasized that the issue was very much up for more discussion.

Prof. Higgins (FBS) asked how information documented in an internal investigation would flow to an external legal investigation if one were to follow. **Prof. Richman** understood that all documents collected in a given internal case would be retained internally and would be discoverable in a legal proceeding.

Prof. El-Korchi (CEE) proposed that the revised policy be brought back to the faculty for discussion with University Counsel present before it is brought for a vote. **Prof. Richman** thought that it might be possible to bring the revised policy back in April for discussion and then in May for a vote.

Prof. Richman emphasized that he, Prof. Boudreau and Prof. Gaudette - as faculty members on the Working Group – and all members of COG are anxious to incorporate input from the faculty into the next draft of the policy, and he encouraged people to take the time to provide their comments to any one of them.

5. Announcements
V.P. Clay (Student Affairs) announced that commencement regalia could be ordered through the Provost's office, and that forms were available on the front table.

6. Adjournment
Meeting adjourned at 4:45pm.

Respectfully submitted,

Mark Richman
Secretary of the Faculty

Addenda on file with these minutes:
1. **Addendum #1 Memorial Resolution for Prof. Charles Rich – March 15 2018**
2. **Addendum #2 COG Presentation – TTT-NTT Teaching Distribution Fall 2004 to Spring 2017 – March 15 2018**
3. **Addendum #3 COG Presentation – Strategic Growth of the TTT Faculty – March 15 2018**
4. **Addendum #4 COG Presentation – Proposed New Sexual Misconduct Policy – March 15 2018**

To be presented for discussion only at the April 12, 2018 Faculty meeting.

Note: Text that has been modified or added to the draft discussed at the March 15 Faculty meeting is in ***bold italics***.

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[*DRAFT*] WPI SEXUAL MISCONDUCT POLICY[1]

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Introduction: WPI's Commitment to a Campus Free from Sexual Misconduct

WPI is committed to maintaining a learning and working environment that is free from sexual misconduct, remedying the effects of such misconduct when it occurs, and preventing its re-occurrence. The prohibition of sexual misconduct applies to everyone at WPI, including all faculty members *(including academic administrators)*, staff members *(including non-academic administrators)*, students, trustees, alumni and all visitors to the WPI campus.[2]

Application of this Policy

This Policy applies whenever misconduct occurs: a) on WPI property; or b) off WPI property if: i) the conduct was in connection with a WPI or WPI-recognized program or activity; or ii) the conduct may have the effect of creating a hostile environment for a member of the WPI community.

Definitions

   a. **Sexual Misconduct**

   "Sexual misconduct" is prohibited under this Policy. ***Sexual misconduct is a broad term that includes sexual harassment, sexual assault, sexual exploitation, gender motivated stalking, relationship abuse, engaging in certain inappropriate relationships, and retaliation against a person reporting sexual misconduct or participating in any investigation or proceeding related to this policy, all as defined below. This definition of sexual misconduct includes sexual assault (rape, fondling, incest, or statutory rape) as defined by the Clery Act, a federal law on campus safety and security. Sexual misconduct can occur between individuals who know each other, individuals who do not know each other, individuals who have an established relationship, and individuals who have previously engaged in consensual sexual activity. Sexual misconduct can be committed by persons of any gender identity, and it can occur between people of the same or different sex. Use of alcohol or other drugs will not excuse any behavior that violates this policy.***

      1. Sexual Harassment

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[1] This Policy supersedes all WPI policies dealing with Sexual Misconduct including the "Sexual Misconduct Policy" in the Student Responsibilities and Code of Conduct, the "Sexual Harassment Policy" in the WPI Employee Benefits and Policies Manual, and the "Sexual Harassment Policy" in the Faculty Handbook.

[2] Probationary staff, part-time employees, and employees subject to a letter of appointment or a collective bargaining agreement may be subject to a different disciplinary process in accordance with applicable policies and terms of their appointment.

Sexual Harassment is unwelcome conduct of a sexual nature, such as unwelcome sexual advances, requests for sexual favors, or other verbal, nonverbal, or physical conduct of a sexual nature, when:

Submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or academic standing;

Submission to or rejection of such conduct by an individual is used as the basis for significant employment decisions (such as advancement, performance evaluation, or work schedule) or academic decisions (such as grading or letters of recommendation) affecting that individual;

The conduct is sufficiently severe or pervasive that a reasonable person would consider it intimidating, hostile, or abusive and it adversely affects an individual's educational, work, or living environment.

A partial list of examples of conduct that might be deemed to constitute sexual harassment if sufficiently severe or pervasive include:

Examples of verbal sexual harassment may include unwelcome conduct such as sexual flirtation, advances or propositions or requests for sexual activity or dates; asking about someone else's sexual activities, fantasies, preferences, or history; discussing one's own sexual activities, fantasies, preferences, or history; verbal abuse of a sexual nature; suggestive comments; sexually explicit jokes; turning discussions at work or in the academic environment to sexual topics.

Examples of nonverbal sexual harassment may include unwelcome conduct such as displaying sexual objects, pictures, or other images; invading a person's personal body space, such as standing closer than appropriate or necessary or hovering; displaying or wearing objects or items of clothing which express sexually offensive content; making sexual gestures with hands or body movements; looking at a person in a sexually suggestive or intimidating manner; or delivering unwanted letters, gifts, or other items of a sexual nature.

2. *Sexual Assault*

   Sexual assault is any intentional sexual contact or activity that occurs without the consent of any individual involved.

3. *Sexual Exploitation*

   Sexual Exploitation is purposefully taking sexual advantage of another person without consent. Examples of sexual exploitation include:

   - Sexual voyeurism, such as watching a person undressing, using the bathroom or engaged in sexual activity without the consent of the person observed.

   - Taking pictures or video or an audio recording of another person engaging in sexual activity or exceeding the boundaries of consent (such as allowing another person to hide in a closet and observe sexual activity or disseminating sexual pictures without the photographed person's consent).

- Engaging in sexual activity with another person while knowingly infected with human immunodeficiency virus (HIV) or other sexually transmitted disease (STD) without informing the other person of the infection.

- Administering alcohol or drugs (such as "date rape" drugs) to another person without their knowledge or consent.

4. *Gender-motivated Stalking*

Stalking is defined as a pattern of actions *or course of conduct* directed at a specific person over time that would cause a reasonable person to feel fear. This policy covers those instances where the stalking of a person is motivated by the person's real or perceived gender, sex, or sexual orientation. ***For the purposes of this definition, "course of conduct" means two or more acts, including, but not limited to, acts in which the stalker directly, indirectly, or through third parties, by any action, method, device, or means, follows, monitors, observes, surveils, threatens, or communicates to or about a person, or interferes with a person's property.***

Stalking can take many forms. Examples include, but are not limited to, two or more instances of the following conduct (that also meet the definition of stalking above): following a person; appearing at a person's home, class or work; continuing to contact a person after receiving requests not to; leaving written messages, objects, or unwanted gifts; vandalizing a person's property; photographing a person; and other threatening, intimidating, or intrusive conduct. Stalking may also involve the use of electronic media such as the internet, social networks, blogs, cell phones, texts, or other similar devices (often referred to as cyber-stalking). Such conduct may include, but is not limited to, non-consensual communication, telephone calls, voice messages, emails, texts, letters, notes, gifts, or any other communication that are repeated and undesired.

5. *Relationship Abuse*

Relationship abuse is defined as behavior that serves to exercise control and power in an intimate relationship. The behaviors can be physical, sexual, psychological, verbal and/or emotional. Relationship abuse can occur between current or former intimate partners who have dated, lived together, have a child together, currently reside together on or off campus, or who have otherwise connected through a past or existing relationship. It can occur in opposite-sex and same-sex relationships.

Examples of relationship abuse include but are not limited to: attempting to cause or causing bodily injury by hitting, slapping, punching, hair pulling, kicking, sexual assault and/or other forms of unwanted physical contact that cause harm; knowingly restricting the movements of another person; isolating or confining a person for a period of time; controlling or monitoring behavior; being verbally and/or emotionally abusive; and exhibiting extreme possessiveness or jealousy.

6. *Inappropriate Relationships*

With undergraduate students.   Except in unusual circumstances involving preexisting relationships, amorous relationships between WPI ***employees*** and ***undergraduate*** students are inappropriate and ***are prohibited***.

With graduate students. Implicit in the area of professionalism is the recognition by those in positions of authority that in relationships with ***graduate*** students there is always an element of power and consent to a romantic relationship that may not be valid where either person ***in the relationship*** has direct or indirect power or control over any aspect of the other person's academic or employment environment.

With supervisees. It is incumbent upon members of the ***WPI community*** to refrain from abusing, and seeming to abuse, the power with which they are entrusted, ***because*** relationships between ***supervisors (including TA's and RA's) and supervisees*** are fundamentally asymmetric in nature.

7. *Retaliation*

Retaliation means any ***materially*** adverse action or threat taken or made against an individual, including through third parties and/or legal counsel, for making a report of misconduct or participating in any investigation or proceeding related to this policy. Retaliation includes threatening, intimidating, harassing, or any other conduct that would discourage a reasonable person from engaging in activity protected under this policy, such as seeking services, receiving interim protective measures and accommodations, and/or reporting misconduct. Retaliation includes maliciously and purposefully interfering with, threatening, or damaging the academic and/or professional career of another individual before, during or after the investigation and resolution of a report of misconduct under this policy in response to and/or on account of the report of misconduct. This provision only applies to reports made or information provided in good faith, even if the facts alleged in the report are determined not to be accurate. Any person who retaliates against an individual reporting sexual misconduct, or filing a sexual misconduct complaint, or participating in a sexual misconduct investigation is subject to disciplinary action up to and including expulsion or termination.

b. **Consent**

1. *What is consent?*

Consent is the positive, unambiguous, and voluntary agreement to engage in specific sexual activity throughout a sexual encounter. Consent must be an informed, deliberate and voluntary decision to engage in mutually acceptable sexual activity. It is the responsibility of the person who initiates sexual activity to make sure consent is received from any other person(s) involved. ***WPI recognizes that there are a wide variety of sexual interactions, that there is no single way to communicate consent, and that context matters. At all times, each party is free to choose where, when, and how they participate in sexual activity. Accordingly, when evaluating whether sexual activity was consensual, WPI will consider the entirety of the sexual interaction and the relevant circumstances.***

Consent is active not passive. Individuals should be able to clearly articulate why and how they believed they received consent and what they considered to be indications of consent as they engaged in sexual activity. Consent must be received for each sexual act. It is important to remember:

- Consent to one sexual act does not constitute or imply consent to another act.

- Previous consent does not imply consent to future sexual activity.
- Consent cannot be assumed based on the parties' relationship or sexual history.
- Consent can be withdrawn at any time before or during sexual activity.

2. *What is Not Consent?*

Consent may not be inferred from silence, passivity or a lack of objection. The absence of a negative response, such as silence or a failure to resist, does not equal consent. Some behaviors and comments that do not indicate affirmative consent include but are not limited to:

- "I don't know"
- "Maybe"
- A head shake
- Lack of objection
- Not fighting back
- A verbal "no" that may sound indecisive or insincere

3. *Consent Can Never Be Given By:*

- Someone who is incapacitated. It is a violation of this Policy to engage in sexual activity with a person who an individual knew or should have known was incapacitated. A person can be incapacitated through the use of drugs, alcohol or any other intoxicating substance, medications or when they are unconscious, asleep or otherwise unaware that sexual activity is occurring.

- Someone under the legal age of consent. The legal age of consent in the Commonwealth of Massachusetts is sixteen (16).

- Someone who is mentally disabled or cognitively impaired. It is a violation of this Policy to engage in sexual activity with a person whose mental disability or cognitive impairment renders them incapable of giving consent and the disability/impairment is known or should have been known to the non-disabled sexual partner.

4. *Consent and the Use of Alcohol or Drugs:*

The use of alcohol or drugs does not relieve an individual of the obligation to obtain consent before initiating and/or engaging in sexual activity.

Obligations of Employees to Report Sexual Misconduct

a. **Responsible Employees**

1. All employees (except Confidential Resource Advisors; identified below) who learn of a violation of this Policy involving students are required to immediately report such information to the Title IX Coordinator or a Deputy Coordinator.

2. ***All supervisors (except Confidential Resource Advisors) who learn of a violation of this Policy are required to immediately report such information to the Title IX Coordinator or Deputy Coordinator.***

3. Employees will receive regular training in their duty to report sexual misconduct.

b. **Confidential Resource Advisors**

The following employees*, who will receive regular training,* may serve as confidential advisors for students and are not required to report violations of this Policy:

1. Employees of Student Health Services.

2. Employees of the Student Development and Counseling Center.

3. A chaplain or religious advisor working at WPI.

4. *WPI Ombudspersons and any other individual with appropriate training who is specifically appointed by WPI for the purpose of serving as a confidential resource advisor.*

Resources Available in Cases of Sexual Misconduct

Anyone who has experienced sexual misconduct or is aware of someone who may have been the victim of sexual misconduct is strongly encouraged to report such misconduct and to take advantage of resources available on campus and in the community.

a. **Reporting Sexual Misconduct Immediately After a Sexual Assault**

If you or someone you know has recently been assaulted:

- Go to a safe place as soon as you can.

- In an emergency, call campus police at 508-831-5555, or 5555 from a campus phone or via a blue light phone on campus. *If it is not an emergency, then c*all the WPI Police Department at 508-831-5433.

- Seek medical attention. The WPI Student Development and Counseling Center offers counseling appointments to all students. The Emergency Room at UMass Medical Center offers services and support for people who have experienced sexual assault. WPI Police can provide students with an escort to the hospital.

- Try to preserve all physical evidence.

- If you are the victim of a sexual assault, try not to wash your face or hands, bathe, brush your teeth, drink or eat, douche, or change clothes if you can avoid it. If you do change your clothes, put all clothing you were wearing at the time of the assault in individual paper bags (not plastic). It is important to preserve as much evidence as possible should you later decide to press criminal charges.

b. **Reporting Sexual Misconduct to the Title IX Coordinator and or Deputy Title IX Coordinators**

The Title IX Coordinator plays an integral role in carrying out the University's commitment to provide a positive learning, teaching and working environment free from sexual misconduct and discrimination. *Any student, faculty, or staff member who has*

concerns about sexual misconduct is encouraged to seek the assistance of those listed below. They will provide information on resources for assistance and options to address concerns. Those options may vary depending on the nature of the situation, whether the individuals involved are students, faculty, or staff members, the wishes of the individuals involved regarding confidentiality, and whether the individuals involved prefer to proceed formally or informally.

During business hours, anyone who has experienced sexual misconduct or is aware of someone who may have been the victim of sexual misconduct may contact the Title IX Coordinator or any Deputy Title IX Coordinator. Contact information for the Title IX Coordinator and Deputy Coordinators is as follows:

Title IX Coordinator:	Melissa Pierce Human Resources, Boynton Hall, 508-831-6514, mapierce@wpi.edu
Deputy Title IX Coordinators:	Emily Perlow Assistant Dean of Students Student Affairs, Campus Center 508-831-5201, eperlow@wpi.edu
	Kristan Coffey Assoc. Dir. of Talent and Human Res. Human Resources, Boynton Hall 508-831-4680, kecoffey@wpi.edu
	Arthur Heinricher Dean of Undergraduate Studies Office of the Provost, Boynton Hall 508-831-5397, heinrich@wpi.edu
	Anne Ogilvie Executive Director, Global Projects Program IGSD, Projects Center 508-831-4944, atogilvie@wpi.edu

c. **Reporting Sexual Misconduct Anonymously**

If you are concerned about a visitor, student, faculty, or staff member who is the victim of a Title IX violation or has committed a Title IX violation, you may report the situation anonymously by clicking HERE. In that case, you will not be contacted and will remain anonymous. If you wish, you may include your contact information, so we may contact you if we have additional questions.

NOTE: This is not a system to use for emergencies. In case of an emergency, regardless of time of day, in which someone's well-being is in jeopardy, please contact Campus Police at +1-508-831-5555.

Initial Steps and Investigation of Reports of Sexual Misconduct

a. **Initial Steps**

All reports of alleged sexual misconduct will be referred to the Title IX Coordinator. Within five business days of receiving such a report, the Title IX Coordinator or their designee[3] will take several initial steps. These initial steps will include, but are not limited to, the following:

1. Encouraging the person who has allegedly experienced sexual misconduct *(the "Complainant")[4]* to meet with the Title IX Coordinator to discuss the nature and circumstances of the reported conduct. If the person who has reported the alleged sexual misconduct is not the person who has experienced the sexual misconduct, then the person who has made the report should have the opportunity to meet with the Title IX Coordinator to discuss the nature and circumstances of the reported conduct.

2. Notifying the Complainant about their rights and options under this Sexual Misconduct Policy, including the right to report and the right to decline to report the matter to campus police and/or to local law enforcement, the options for reporting to WPI, and the availability of medical treatment, counseling, and other resources, both on and off campus.

3. *Meeting with the person who has allegedly committed sexual misconduct (the "Respondent") to explain the allegation and to get their version of events, and providing that person with the option and adequate opportunity to provide a written response to the allegations. The Respondent should be notified about their rights under this Sexual Misconduct Policy, and about the availability of counseling and other on- and off-campus resources.*

4. If the Complainant requests that the process not move forward, the Title IX Coordinator will weigh that request against WPI's obligation to address any risk of harm to the Complainant or other individuals in the community, and the nature of the incident or conduct at issue. *If, following the receipt of an alleged violation of this Policy, the person who allegedly experienced sexual misconduct declines to participate in the investigation or resolution process or requests that the process not proceed, the Title IX Coordinator may decide to close the investigation or choose to continue the process without the person's participation.*

5. Assessing the reported conduct to determine whether the circumstances warrant appropriate interim measures including, but not limited to, no-contact orders, interim suspension of a student, deadline extensions, reassignment of housing, or placing an employee on *paid* leave prior to completing an investigation. Failure to comply with an interim measure may lead to additional disciplinary action.

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[3] As necessary and appropriate, the Title IX Coordinator may designate a Deputy Title IX Coordinator or another qualified person to assume the Title IX Coordinator's responsibilities under this Policy.

[4] *Throughout this Policy, the term "Complainant" refers to the person who experienced sexual misconduct regardless of who reported the misconduct.*

6. Assessing whether the behavior alleged constitutes a violation of this Policy and is sufficiently credible and specific so that potential evidence of such misconduct may be identified. If the Title IX Coordinator determines that the reported conduct would not trigger this Policy, they will advise both the Complainant and the Respondent in writing, and *based on the information gathered* may also refer the reported conduct to the appropriate administrator or department for handling consistent with any other applicable policy. *If the Title IX Coordinator determines that the reported conduct does fall under this Policy, then the case will proceed to the Investigation Phase, as described below.*

b. **The Investigation Phase**

1. *Notice of an Investigation:* If it is determined that an investigation is required, the Title IX Coordinator will send a written notice to the Complainant (or "party") and to the Respondent (or "party") (collectively, the "parties"). The notice will include a *sufficiently detailed* description of the allegations, the portions of this Policy that are alleged to have been violated, and any interim measures in place about which either party should be made aware. This written notice does not constitute a finding or a determination of responsibility.

   The notice will also state that if *either* party requires any kind of accommodation due to disability pursuant to the ADA *or Section 504 of the Rehabilitation Act,* it is the responsibility of that party to make the Title IX Coordinator aware of the need for an accommodation. The Title IX Coordinator will work with *each of* the parties and as applicable, *Office of Disability Services (for students) and/or the 504 Coordinator (for employees)* to ensure that appropriate accommodations are available.

2. *Information about Advisors:* Each party may have a single advisor present during any investigative proceeding, including any related meeting, interview, or hearing. *Any person may serve as an advisor, including* an attorney. Each party must provide the name and contact information of their advisor to the Title IX Coordinator within five *business* days of receiving notice of an investigation. Advisors may communicate with their advisee but may not may not speak or otherwise communicate on behalf of a party. Advisors are subject to the same confidentiality obligations applicable to others in attendance.

3. *Designation of Role of the Investigator:* The Title IX Coordinator will designate at least one unbiased, *qualified i*nvestigator(s)[5] to conduct a prompt, fair, and impartial investigation of the reported conduct and prepare a report of investigative findings (the "Investigative Report").[6] More than one investigator may be assigned. Investigator(s) need not be employees of WPI. The Title IX Coordinator will provide each of the parties with the name of the Investigator(s). As soon as possible, but no

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[5] *The investigator shall be deemed "qualified" if the individual has received training in conducting Title IX investigations and has the requisite professional experience to conduct the investigation.*

[6] If the Respondent is a faculty member, the Title IX Coordinator will *collaborate* with the Secretary of the Faculty, in appointing the Investigator *and in rendering a decision regarding any potential conflicts of interest involving the investigator.*

later than three (3) calendar days after delivery of the identity of the Investigator(s), the parties should inform the Title IX Coordinator (in writing) of any potential conflicts of interest about the selected Investigator(s). The Title IX Coordinator will consider the nature of the potential conflict and determine if a change is necessary.[7] The Title IX Coordinator's decision *(in appropriate collaboration with the Secretary of the Faculty, as described in footnote 6)* regarding any conflicts regarding the investigator(s) is final.

4. *Nature of the Investigation:* The investigation will include separate interviews with the Complainant (unless that person chooses not to participate in the investigation), the Respondent, and any witnesses whom the Investigator(s) believe will provide necessary and relevant information. The investigation will include the review of documentation or other items relevant to the reported conduct.

5. *Identification of Potential Witnesses and Documentation:* The parties will have the opportunity to provide the Investigator(s) with written notice of the names and contact information of potential witnesses with whom they would like the Investigator(s) to speak together with a brief explanation of how the persons, documents, and/or items are relevant to the reported conduct. The parties may also provide the Investigator(s) with any documentation or other items or questions they would like to be considered or posed to any witness or the other party. The Investigator(s) will exercise discretion in determining what information and questions to consider and which potential witnesses will be interviewed.

6. **Participation in the Investigation: Participation in the process (by providing information to the Investigator(s), responding to questions from the Investigator(s), responding to information provided by a party or a witness, etc.) is not required, but the Investigation will proceed even if a party or witness declines to participate. During the investigation, the parties will have an equal opportunity to participate. If a party initially declines but then later in the Investigation decides to participate, the Investigator(s) may consider that timing when determining the credibility of the information/evidence offered and the weight to give that information/evidence.**

7. *Investigation Prohibitions:* The Investigator(s) will not gather or consider information related to either party's sexual history with other persons except as relevant to the alleged violation, as determined in the sole discretion of the Investigator(s).

8. *Coordination with Law Enforcement: The Investigator or designee may contact any law enforcement agency that is conducting its own investigation to inform them that a WPI investigation is also in progress; to ascertain the status of the criminal investigation; and to determine the extent to which any evidence collected by law enforcement may be available to WPI in its investigation. At the request of law enforcement, the Investigator may delay the investigation temporarily while an*

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[7] If the Respondent is a faculty member, the Title IX Coordinator **will collaborate with the Secretary of the Faculty in making a decision** about whether or not to disqualify an Investigator when the faculty member objects based on a potential conflict of interest.

external law enforcement agency is gathering evidence. The Investigator will generally resume the investigation when notified that law enforcement has completed the evidence-gathering stage of its criminal investigation.

c. **Optional Informal Resolution Procedure**

At any time prior to convening a Judicial Panel (defined below), a Party may contact the Title IX Coordinator to request an informal resolution of a complaint. All parties and the Title IX Coordinator must agree to informal resolution for this option to be used. If the Title IX Coordinator determines that informal resolution is appropriate, the Title IX Coordinator will attempt to reach a resolution. The allegation will be deemed resolved when the parties expressly agree to an outcome that is acceptable to them and is approved by the Title IX Coordinator in consultation with other appropriate administrators.

Procedures Following the Investigative Phase of a Title IX Investigation

a. **The Investigative Report.** After the Investigation Phase, the Investigator(s) will deliver an Investigative Report to the Title IX Coordinator. The Investigative Report should include *a description of the alleged sexual misconduct, and* a summary of the information presented during the Investigation Phase including a section where the Investigator(s) point out relevant consistencies or inconsistencies (if any) between different sources of information. The Investigative Report will not include a recommendation or a determination as to whether a party has violated the Sexual Misconduct Policy or what sanctions may be appropriate. These determinations will be made by the Judicial Panel, as described below.

b. **Review by the Parties.** Within five (5) *business* days of receiving the Investigative Report, the Title IX Coordinator will provide each party with a copy of the Investigative Report. Each party will have an opportunity to submit written comments to the Title IX Coordinator about the Investigative Report within five (5) *business* days of receiving the report. The time to submit written comments may be extended if the Title IX Coordinator concludes, in his/her sole discretion, that additional time is warranted. After reviewing the submissions, if any, from the parties, the Title IX Coordinator may determine that additional investigation is required, in which case the Investigator will supplement the Investigative Report and submit a final Investigative Report to the Title IX Coordinator. Any submissions made by either party, as well as any other documentation deemed relevant by the Investigator(s), will be attached to the Investigative Report. Within three (3) *business d*ays of receiving the final Investigative Report, the Title IX Coordinator will provide each party with a copy of the final Investigative Report.

c. **Convening the Judicial Panel.** The Title IX Coordinator will convene a five-member Judicial Panel (the "Judicial Panel") from a previously established pool of WPI faculty *members elected by the Faculty to the Campus Hearing Board,* staff members and students trained to decide sexual misconduct cases*. The process for selecting staff members and students for the pool and the training process for all members of the pool is set by the Title IX Coordinator in collaboration with the Dean of Students Office, the Secretary of the Faculty, and the Human Resources Department.* Students will only

serve on panels where the Respondent is a student. If the Respondent is a student, the Judicial Panel should include a student member unless either party elects not to have a student serve on the Judicial Panel. If the Respondent is a faculty member, the Judicial Panel should include at least three faculty members. If the Respondent is a staff member, the Judicial Panel should include at least three staff members. The Title IX Coordinator will provide the parties with the names of the persons assigned as the Judicial Panel members for their case. As soon as possible, but no later than three (3) business days after delivery of the identity of the assigned Judicial Panel members, the parties should inform the Title IX Coordinator in writing of any conflicts of interest regarding the members assigned to the Judicial Panel. If a conflict of interest is raised regarding any of the individuals assigned to the Judicial Panel, the Title IX Coordinator will consider the nature of the conflict and determine if different individuals should be assigned to the Judicial Panel. The Title IX Coordinator should consult with other WPI personnel (and shall *collaborate* with the Secretary of the Faculty in the case of any conflict of interest *raised by a faculty member who is a party in the case or* with respect to a proposed Judicial Panel member who is a faculty member) to assess any conflicts of interest. The Title IX Coordinator's decision *(in appropriate collaboration with the Secretary of the Faculty)* regarding any conflicts is final. The Title IX Coordinator will then submit the Investigative Report to the Judicial Panel members *who will* set a *schedule* for the Judicial Panel to convene *a hearing or hearings.*

d. **Role and Responsibilities of the Judicial Panel.** The Judicial Panel will *obtain the Investigative Report from the Title IX Coordinator and* convene to review the Investigative Report. The Judicial Panel, in its discretion, may request the Investigator(s) to attend a Judicial Panel meeting and answer questions. The Judicial Panel, in its discretion, may request the Investigator(s) to conduct additional investigation on specific points. The Judicial Panel *must* request the *parties that participated in the investigation* to appear and answer questions posed by the Judicial Panel. *In addition,* the Judicial Panel, in its discretion, may request to speak with any individual identified in the Investigative Report *as well as any other individual with relevant information including individuals identified by the parties.*

In general, a Complainant, witness, or Respondent who had the opportunity to participate during the Investigation but elected not to participate will not be permitted to participate verbally in the hearing or submit documents prior to the hearing. The Judicial Panel may permit a Complainant, witness, or Respondent who did not participate in the Investigation to participate in the hearing upon a showing of good cause. Exceptions of this nature are expected to be rare. The possibility of a law enforcement investigation or criminal court proceedings will generally not be considered good cause for an exception. In general, documents that have not been submitted during the Investigation may not be presented to the Judicial Panel, although the Judicial Panel may permit documents to be submitted that were not part of the Investigation upon a showing of good cause. The Judicial Panel may, however, consider the fact that the documents were not provided during the Investigation when determining the credibility of the information/evidence offered and the weight to give that evidence.

The Judicial Panel will decide by majority vote whether the Respondent is responsible for violating the Sexual Misconduct Policy, whether sanctions are appropriate and, if so, what those sanctions shall be. ***The Judicial Panel should state the basis for such decisions in a document maintained with records relating to the case.***

e. **Standard of Proof.** All findings and determinations of responsibility and sanctions will be made using a preponderance of the evidence standard. This standard requires the determination of whether it is more likely than not that a fact exists or a violation of the Sexual Misconduct Policy occurred.

f. **Rights of the Parties.** Throughout the process, the parties shall have:
   - the presumption of innocence;
   - the opportunity to present evidence and respond to allegations of sexual misconduct;
   - the opportunity to present a defense; and
   - the opportunity to offer witnesses to be interviewed by the Investigator and questioned by the Judicial Panel. ***Neither party will be permitted to question or cross-examine the other party during any hearing held by the Judicial Panel.***

g. **Sanctions.** ***A finding of responsibility for Sexual Misconduct can result in a wide range of sanctions, depending on the circumstances of a particular case. When the Respondent is a student, examples of sanctions include community service, counseling, probation, suspension from residence hall, suspension from the university for one or more terms, expulsion from WPI. When the Respondent is a staff member or a faculty member, examples of sanctions include community service, counseling, probation, reassignment of duties, suspension with pay, suspension without pay, and termination of employment at WPI.*** In deciding an appropriate sanction, the Judicial Panel shall consider the following factors:

   - the nature and circumstances of the misconduct;
   - the impact of the misconduct on the person who experienced Sexual Misconduct;
   - the disciplinary history of the Respondent;
   - any other mitigating or aggravating circumstances in order to reach a fair and appropriate resolution in each case.

Notification of Decision

Upon reaching a determination of responsibility by majority vote, the Judicial Panel will provide a written notification of its decision to the Title IX Coordinator. The written notification will consist of a statement of the allegations, the Judicial Panel's factual findings, a decision as to whether the Respondent committed Sexual Misconduct, any sanction, and the rationale for these decisions. ***This written document shall be maintained with records relating to the case.***

The Title IX Coordinator will forward to the parties simultaneously (i) the Judicial Panel's written ***notification described above;*** and (ii) the procedures for either party to appeal. The Title IX Coordinator will also inform other WPI officials as necessary and appropriate.

Appeals[8]

All appeals (in Section "a" below) and special appeals (in Section "b" below) should be delivered to the Title IX Coordinator who will transmit the appeal to the appropriate Appellate Officer.

a. **Appeals Available to either Party**

Within seven (7) business days following the delivery of the notice of the Judicial Panel's determination of responsibility and sanction, either Party may appeal the decision and/or sanction to the appropriate Appellate Officer. If the Respondent is a student, the Appellate Officer is the Vice President for Student Affairs. If the Respondent is a faculty member, the Appellate Officer is the Provost (unless the Respondent is a full-time faculty member who the Judicial Panel has determined should be dismissed or suspended, in which case Section b. below applies). If the Respondent is a staff member, the Appellate Officer is the Vice President of Talent and Chief Diversity Officer.

If potential bias or conflict of interest is raised by either party regarding the Appellate Officer, the President will consider the nature of the potential bias or conflict *(and, before deciding the matter, shall collaborate on the matter with the Secretary of the Faculty in the case of any conflict of interest raised by a party who is a faculty member)* to assess any conflicts of interest and determine if a different individual should be assigned the role of Appellate Officer. The Appellate Officer shall not be involved in the appeal until the President has resolved any questions of conflict of interest.

The party submitting the appeal must set forth in detail the grounds for appeal and must identify or attach all materials to be considered in the appeal process. The Title IX Coordinator will provide a copy of the appeal submitted by one party to the other party, and the other party may submit any additional materials that they wish to have considered in the appeal process within seven (7) business days of receipt of the appeal.

Within 14 business days after receiving an appeal (including additional materials, if any), the Appellate Officer will decide the merits of the appeal. In deciding the appeal, the Appellate Officer should review evidence considered by the Judicial Panel and may also consult with the Investigator(s), the Judicial Panel, or any other individual that the Appellate Officer deems appropriate.[9] In a case where the Appellate Officer overturns a decision of the Judicial Panel, the Appellate Officer shall first consult with the Investigator(s), the Judicial Panel, and any other individual that the Appellate Officer deems appropriate.

Sanctions may be imposed, in full or in part, while an appeal is pending.

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[8]All Appellate Officers, including the President and Board Chair, will be receive Title IX training.

[9] Because the President may have a role in the appellate process involving full time faculty members facing suspension or dismissal, the appellate officer shall not communicate with the President regarding a *full-time* faculty member's appeal.

The decisions *concerning responsibility and sanction, if any,* and reasoning of the Appellate Officer(s) will be *provided* in a writ*ten document* and will be final, *except for circumstances that permit a Special Appeal, as described below. The written document shall be maintained with records relating to the case.*

The Appellate Officer will forward the written document to the Title IX Coordinator, and the Title IX Coordinator will inform the parties simultaneously of the outcome of the appeal by forwarding to them the Appellate Officer's written document.

b. *Special Appeals* **with respect to a Respondent who is a Full-Time Faculty Member Involving a Recommended Sanction of Dismissal or Suspension**

The following appeal process applies in two cases:

1. As the sole method of appeal of a determination by a Judicial Panel that a Respondent who is a full-time faculty member should be dismissed or suspended; and

2. As an appeal of a determination by the Appellate Officer that a Respondent who is a full-time faculty member should be dismissed or suspended when that determination was made on appeal of a Judicial Panel's decision not to impose such sanctions on the Respondent.

Such appeals appeal will be subject to the following procedure:

The Respondent may appeal *(both the finding of responsibility and the sanction)* to the President within fourteen days after the Title IX Officer notifies the Respondent of the imposition of the sanction by the Judicial Panel or within fourteen days after the Appellate Officer imposes a sanction of suspension or dismissal on the first appeal. The appeal to the President should state why the Respondent believes the determination of responsibility and/or the sanctions were inappropriate. The appeal must also set forth in detail the grounds for appeal and must identify or attach all materials to be considered in the appeal process. The Title IX Coordinator will provide a copy of the appeal to the *Complainant (if that person has not declined to participate in the investigative and judicial case)*. The *Complainant* may submit a response to the Title IX Coordinator within five days of receiving a copy of the appeal. *The Title IX Coordinator will forward that response to the President.*

Before the President decides the appeal, the President should consult with the previous Appellate Officer *(if there were one)* and the Secretary of the Faculty. The President should issue a decision within thirty days of receiving the appeal. *If the decision will take longer than thirty days, the President should inform the parties of the additional time necessary to render a decision. The decisions concerning responsibility and sanction, if any, and reasoning of the President will be provided in a written document. The written document shall be maintained with records relating to the case.*

The President will forward the written document to the Title IX Coordinator, and the Title IX Coordinator will inform the parties simultaneously of the outcome of the appeal by forwarding to them the President's written document.

If the President decides to impose a sanction of dismissal or suspension, the Respondent may appeal the sanction to the Board of Trustees within fourteen days after the Respondent is notified of the President's decision. If the Respondent appeals to the Board, the Chair of the Board, in collaboration with the Secretary of the Faculty, shall appoint a committee of five faculty members who will make a recommendation regarding the sanction imposed. The faculty committee will have access to all written reports and materials relevant to the case. The faculty committee will summarize the basis for its recommendation in a written report to the Board Chair within thirty days. The Board Chair should issue a written decision within thirty days of receiving the faculty committee's report. *If the decision will take longer than thirty days, the Board Chair should inform the parties of the additional time necessary to render a decision. The decision and reasoning of the Board Chair will be provided in a written document. The written document shall be maintained with records relating to the case. The Board Chair will forward the written decision document to the Title IX Coordinator, and the Title IX Coordinator will inform the parties simultaneously of the outcome of the appeal by forwarding to them the Board Chair's written document.*

The Board Chair's decision shall be final.

Timeframe for Completing the Investigation and Disciplinary Process

WPI will endeavor to complete the investigation and disciplinary Judicial Panel process, if any, within sixty (60) days of the delivery of the written notice of investigation to the parties. This period does not include the time for any appeal. Timeframes set forth in this Policy may be extended for good cause. WPI's overarching goal is that the process should be prompt, fair, and impartial.

Additional Matters

a. *No Conflicts of Interest. To the maximum extent practicable, steps should be taken to ensure an impartial and unbiased process, including participation of persons (including investigators) who: (1) have sufficient qualifications and training to carry out a thorough evaluation of the relevant information; and (2) have no unresolved personal, professional, or financial conflicts of interest with those involved with the inquiry or investigation that could affect their ability to be objective reviewers.*

In cases where the Title IX Coordinator has a conflict of interest, a Deputy Title IX Coordinator appointed by the President will serve in the Title IX Coordinator's role. In cases where the Appellate Officer has a conflict of interest, the President shall appoint another Appellate Officer.. In cases where allegations of Sexual Misconduct have been brought against the Title IX Coordinator, the Vice President of Talent and Chief Diversity Officer, the Provost, or the President, then the process outlined in this policy will be adjusted accordingly to avoid any conflicts of interest. Except in cases involving the President, the President shall resolve any questions of bias or conflict of interest. The President's decision on such questions shall be final.

b. **Duty of Honesty.** Any person who knowingly makes a false statement – either explicitly or by omission – in connection with any part of the process may be subject to separate

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disciplinary action. *A false or unfounded report of misconduct determined by WPI to have been made in bad faith and dishonesty is a serious offense. Such offenses may themselves be investigated and may lead to disciplinary action, up to and including termination of employment or other affiliation with WPI.* A report made in good faith is not considered false merely because the evidence does not ultimately support the allegation of violation of the Policy.

c. *Good Faith Participation by the Parties and Witnesses. The investigation is a neutral fact-gathering process. Although participation in the process (providing information to the Investigator(s), responding to questions from the Investigator(s), responding to information provided by a party or a witness, etc.) is not required, the the Complainant, the Respondent, and all witnesses are expected to participate in good faith in the process set forth in this Policy, and they may be required by WPI to attend meetings related to the process. Any person who knowingly interferes with the reporting, investigation, or resolution of matters under this Policy may be subject to separate and/or additional disciplinary action*

d. *Duties of Promptness and Care. Proceedings concerning Sexual Misconduct often raise difficult issues for those making the allegations, for those who are the subject of the allegations, and for those responsible for reviewing the allegations. Review of the allegations should therefore be conducted promptly and with care and sensitivity.*

e. *Duty of Confidentiality. The University will administer any complaint of sexual misconduct using the process described in this Policy while providing the utmost degree of privacy and confidentiality possible under the circumstances of each matter and as permitted by law. All participants in the review process under this Policy are expected to maintain confidentiality to protect the privacy of all involved, to the extent possible and as permitted by law. Participants should keep in mind the effect that allegations can have on reputations, even if the allegations are not sustained by the proceedings. Thus, only those people with a need to know should be informed of a complaint. Any participant in the process set forth in this Policy who violates their duty of confidentiality may be subject to discipline under the appropriate WPI policy.*

f. **Recording the Proceedings.** The parties are not permitted to make video, audio, or other electronic, photographic, or digital recordings of any meetings or proceedings held under the Sexual Misconduct Policy or these procedures or the Investigative Phase. The Title IX Coordinator may make exceptions to this prohibition in limited circumstances if he or she concludes, in his or her sole discretion, that a recording is warranted, and upon written request of the party seeking the recording that explains the need for the recording.

g. **Record Keeping.** The Title IX Coordinator should receive and maintain all records relating to proceedings under this Policy including all notices to and from the parties, all reports of Investigators, all decisions by a Judicial Panel, all appeals by the parties, and all decisions by Appellate Officers and others involved in the appeals process under this Policy.

h. *Special Measures. If there is no finding of Sexual Misconduct, all reasonable and practical efforts if requested and as appropriate, should be made to protect and restore*

the reputation of the Respondent. All reasonable and practical efforts should be made to protect or restore the position and reputation of any complainant, witness or other participant in the case, and to counter potential or actual retaliation against these individuals

.i. **Information about Title IX.** Such information, including about filing a complaint with the Department of Education related to this Policy, may be obtained from the Office of Civil Rights at the United States Department of Education, 400 Maryland Avenue, SW Washington, DC 20202-1100; 800-421-3481 TDD: 800-877-8339; OCR@ed.gov.

j. More information about Title IX at WPI may be found at https://www.wpi.edu/offices/title-ix.

Date: April 12, 2018
To: WPI Faculty
From: Committee on Tenure and Academic Freedom (Prof. Rulfs, Chair)
Re: Motion to modify procedures for annual reviews of non-tenured, tenure-track faculty members

Motion: The Committee on Tenure and Academic Freedom recommends and I move that the procedures regarding annual reviews of non-tenured, tenure-track faculty be modified (in the Faculty Handbook, Part Two, Section 1.B.2), as described below:

Description of the Proposed Modifications:

Current Wording (Faculty Handbook, Part Two, Section 1.B.2):
Section 1:   POLICIES REGARDING THE STATUS OF FACULTY
Subsection B: Appointments and Reappointments of Tenure Track Faculty
Subsection 2: Periodic Review (approved by the Faculty, April 17, 2008)

Each Departmental Tenure Committee conducts annual reviews of probationary faculty encompassing scholarship, teaching, and service, and is required to notify the At-Large Committee on Tenure and Academic Freedom, in writing by May 1st, that the review has taken place.

Proposed Wording:
Each Department Tenure Committee (DTC) will conduct an annual review of each probationary faculty member consistent with the WPI *Criteria For Tenure*, (Part Two, Section 1A) encompassing scholarship, teaching, and service. The faculty member being reviewed will provide the DTC with documentation of his/her efforts in each category for the preceding year. The DTC may determine the format of this document (e.g. Faculty Annual Report, tenure dossier format or other). Following the DTC's review of the document, the DTC members will meet and discuss the scholarship, teaching and service aspects of the candidate's efforts for the previous year and together formulate recommendations to the candidate. The members of the DTC will then meet with the candidate to review these recommendations and address any concerns or questions by either party. A summary of the DTC review and recommendations will be prepared, signed by the members of the DTC and the candidate to acknowledge receipt, and kept on file in the department.   CTAF will be officially notified that the report has been completed and signed no later than May 1st. These documents will remain confidential and will NOT be included in the official tenure dossier unless the candidate so chooses. They must remain on file in the department for a minimum of one year after a tenure decision has been made or the candidate withdraws from the tenure process.

Rationale:
It has become evident to members of CTAF that the procedures for Departmental review of candidates vary widely across departments. Since the current process is open to broad interpretation, this motion seeks to more clearly define the process and the role of the candidate and the DTC members in the process. The overall intent is to provide more robust and consistent mentoring to pre-tenure candidates.

Date: April 12, 2018
To: WPI Faculty
From: Committee on Academic Policy (prof. Humi, Chair)
Committee on Graduate Studies and Research (Prof. Troy, Chair)
Re: Motion to modify the current student course report forms and to approve on-line distribution of the modified form

Motion: The Committee on Academic Policy and the Committee on Graduate Studies and Research recommend and I move that:

a) the current form used for the student course report system be modified to a shorter version (see attached) with greater options for faculty customization;
b) the distribution of the forms be entirely electronic beginning in A-term of 2018 for a three-year pilot period; and
c) both CAP and CGSR be charged with evaluating the success of the pilot during AY 2020-21 and recommending any adjustments in time for implementation in A-term 2021.

Background:
In September of 2017, the Provost, with assistance and concurrence from CAP and CGSR, appointed a Task Force for the Improvement of Student Course reports and announced that WPI would move to online administration of course reports in December 2017. The specific charge to the Task Force was to work with the Committee on Tenure and Academic Freedom and the Committee on Appointments and Promotion to make any necessary changes in how these committees use course report data, to review best practices on the use of student feedback to improve and evaluate teaching, to solicit faculty and student feedback about strengths and weaknesses of the current questions, and of the administration and reporting processes and finally to deliver a report to CAP and CGSR on ways to improve our student course reports in the future. At the October 2017 faculty meeting, a motion was approved to withhold approval of online administration until the Task Force submitted its conclusions and recommendations, especially with regard to increasing student response rates. The Task Force has completed its work, and its complete report has been distributed to the faculty.

Recommendations from the Task Force for the Improvement of Student Course Reports:
The motion above presents the primary recommendations from the Task Force:

1. Move to an entirely on-line course report system starting in A2018;
2. Shorten the survey to help improve response rates;
3. Review the system and report to the faculty at the end of a three-year pilot.

The Task Force has made additional recommendations for the implementation of the on-line system. These include:

1. Retain the current open-response questions and allow faculty to add questions to the recommended set of core questions. These data will not be made publically available.
2. A standard one-week response window that closes at midnight on the last day of each term will be the default for all courses.
3. Faculty will be able to set aside class time to allow students to complete the forms. (The on-line forms can be completed using any computer or mobile device.)

4. Use the newest version of Class Climate® software to deploy the forms online, and integrating it with our Canvas LMS to allow instructors to customize questions for individual classes and to access and analyze their individual data.
5. Develop a deliberate communication strategy to promote thoughtful survey completion by students and to inform faculty of recommended strategies, such as setting aside time in class for survey completion or offering an incentive if the class achieves a high response rate.
6. Summary data from course reports for faculty under review by the Committee on Academic Freedom and the Committee on Appointments and Promotion will be provided as in the past. These reports will include the appropriate university averages for comparison purposes.

Most of these recommendations are intended to increase student response rates. The Task Force considered but ultimately rejected the idea of an institution-wide incentive such as early access to grades. If response rates are unsatisfactory after the pilot period, that option can be revisited.

Rationale*:*
The current Student Course Report form includes thirty-two questions with closed-form responses. Twenty-eight of these questions ask students to rate aspects of the course and instructor on a five-point Likert scale. These include five questions that pertain to laboratory experiences only. The remaining four questions utilize check box responses. Additionally there are four open-ended questions. Currently all of these questions are included in the forms distributed to all classes at WPI. There is also an option for a faculty member to provide up to eight additional, ranked questions.

Current practice is that paper forms are distributed by the instructor, and students are provided with time in class to complete the forms. All completed forms are scanned in the Office of Undergraduate Studies and the numerical values averaged. These results are returned to the instructor, and those for the common thirty-two questions are made available to the WPI community through Banner. Only the instructor receives responses to open-ended questions.

One of the primary motivations for the move from paper forms to the on-line course report system is sustainability. The paper system uses roughly 50,000 pieces of paper each year. Each paper form is "touched" at least five times: counting and sorting into envelopes, distribution and collection in class, counting and sorting for scanning, and restuffing into envelopes for return to the faculty. There is a cost associated with paper, student labor, and maintenance and replacement for the specialized scanners used in the process. The Task Force recommends that some of savings realized in the move to an on-line system be used to improve the quality of the course report system, including communication to improve student participation as well as data analysis on the collected data.

There has been strong student interest in an on-line course report system for several years. In a previous survey conducted by the SGA, students overwhelmingly (80%) favored an electronic form over the current paper version.

Faculty have also expressed interest, but many have expressed some reservation regarding the potential for a decrease in response rate and its potential implications for faculty evaluation. About 20% of courses volunteered to use on-line course reports in AY2016-17 and these faculty did see a lower than average response rate: The average response rate for on-line surveys was about 47%, compared to an average response rate of about 77% for courses that continued to use paper forms.

SGA has committed to work to increase the response rate, and the Task Force has identified some strategies that have been successful to increase response rate at other institutions. In C-term 2018 the undergraduate student member of the Task Force deployed a survey to students, asking them which options would most incentivize them to complete an online course report. The top three responses were: if a certain percentage of the class completes the report, bonus points will be given to all (83%); rewards for completing all course reports such as prizes, food, or event access (61%); and having time in class to complete course reports online (51%). Providing a class-wide incentive (not necessarily points) and providing time in class to complete the survey form the core of Recommendation 5 listed above.

Another strategy for increasing response rate is to decrease the number of questions on the survey. Toward that end, the Task Force surveyed faculty and students about the use of the current Course Report questions, for improving teaching and providing useful information for course selection, respectively. Questions were sorted by percent of positive response. Sixteen questions were selected by two-thirds (66%) of each group; this is the set that we recommend be deployed online beginning in A-term 2018

The newest version of the Class Climate software, which we have been using to process our paper forms, offers a great deal of flexibility for instructors to customize their evaluation forms. The institute can develop Question Libraries from which faculty can select individual or selected groups of questions to be added to the universal sixteen-question set. One question library will include all of the questions on the original form that are not included in the shorter question set, so that faculty who wish to continue to use all or some of those may do so. Another library would include the questions that are relevant to laboratory courses. A third might be the set of questions currently asked of students in all Great Problems Seminar courses. Additionally, faculty can write their own questions. This will allow faculty to more easily assess student perceptions of learning in their course, or the effectiveness of new initiatives or new approaches in their teaching. Integrating Class Climate with Canvas will provide faculty with ways to see their own data, to track their evaluation history, and to archive their data for any analysis or study they may wish to do over time. In addition, faculty will be able to view data for each respondent; this will preserve the ability to connect particular comments with quantitative ratings of satisfaction.

The three-year pilot is proposed to allow the community time to assess the success of these changes in providing more useful student report data, including a study of possible sources of bias, and increasing online response rates. At the end of the three-year pilot, both CAP and CGSR should survey the community regarding the status of administration and reporting, the satisfaction with both the content and the process, and the contribution to improving teaching. The Task Force Report includes a number of specific resources that will be required to allow for successful, institution-wide implementation in A-term of 2018, strategies to optimize response rates, and data analyses that this new process will allow. The entire report is appended to the CAP and CGSR minutes and will be appended to the minutes of the faculty meeting.

Sample Student Course Report: Shaded Questions To Be Retained

Class Climate	WPI Student Course Report	SCANTRON

WPI

Mark as shown: ☐ ☒ ☐ ☐ Please use a ball-point pen or a thin felt tip. This form will be processed automatically.

Correction: ☐ ■ ☐ ☒ ☐ Please follow the examples shown on the left hand side to help optimize the reading results.

You can help improve the quality of teaching at WPI by providing your responses on this form. Please consider each reply thoughtfully. These reports are used by the instructor for self-improvement, by students during course selection and by members of the administration and faculty committees. Your responses are anonymous and optional. Your comments will not be returned to your instructor until after the grading deadline.

1. My overall rating of the quality of this course is	Very Poor (1)	☐	☐	☐	☐	☐	(5) Excellent
2. My overall rating of the instructor's teaching is	(1)	☐	☐	☐	☐	☐	(5)
3. The educational value of the textbook and/or assigned reading was	(1)	☐	☐	☐	☐	☐	(5)
4. The educational value of the assigned work was	(1)	☐	☐	☐	☐	☐	(5)
5. The instructor's organization of the course was	(1)	☐	☐	☐	☐	☐	(5)
6. The instructor's clarity in communicating course objectives was	(1)	☐	☐	☐	☐	☐	(5)
7. The instructor's skill in providing understandable explanations was	(1)	☐	☐	☐	☐	☐	(5)
8. The instructor's skill in speaking clearly and audibly was	(1)	☐	☐	☐	☐	☐	(5)

Relative to other college courses I have taken:

9. The amount I learned from the course was	Much less (1)	☐	☐	☐	☐	☐	(5) Much more
10. The intellectual challenge presented by the course was	(1)	☐	☐	☐	☐	☐	(5)
11. The instructor's personal interest in helping students learn was	(1)	☐	☐	☐	☐	☐	(5)
12. The instructor stimulated my interest in the subject matter	(1)	☐	☐	☐	☐	☐	(5)
13. The instructor encouraged communication outside of regular contact hours	(1)	☐	☐	☐	☐	☐	(5)
14. The amount of reading, homework, and other assigned work was	(1)	☐	☐	☐	☐	☐	(5)
15. My attendance and participation for this course was	(1)	☐	☐	☐	☐	☐	(5)
16. The amount of effort I put into this course was	(1)	☐	☐	☐	☐	☐	(5)

How frequently were the following statements true in this course?

17. The instructor was well prepared to teach class.	Never (1)	☐	☐	☐	☐	☐	(5) Always
18. My instructor used course time effectively.	(1)	☐	☐	☐	☐	☐	(5)
19. The instructor encouraged students to ask questions.	(1)	☐	☐	☐	☐	☐	(5)
20. The instructor treated students with respect.	(1)	☐	☐	☐	☐	☐	(5)
21. Instructor feedback on exams/assignments was timely and helpful.	(1)	☐	☐	☐	☐	☐	(5)
22. The exams and/or evaluations were good measures of the material covered.	(1)	☐	☐	☐	☐	☐	(5)
23. My grades were determined in a fair and impartial manner.	(1)	☐	☐	☐	☐	☐	(5)

24. What grade do you think you will receive in this course? ☐ A ☐ B ☐ C
☐ NR/D/F ☐ Other/Don't know

25. Which of the following best describes the role of this course in your academic program? ☐ In your major field ☐ Required for major ☐ Free elective
☐ Required for minor ☐ Other Requirement

26A. On average, how many hours of the formally scheduled hours for lecture, conference, and labs did you ATTEND each week? ☐ 3 hr/wk or less ☐ 4 hr/wk ☐ 5 hr/wk
☐ 6 hr/wk ☐ 7 hr/wk or more

26B. On average, what were the total hours spent in each 7-day week OUTSIDE of formally scheduled class time in work related to this course (including studying, reading, writing, homework, rehearsal, etc.)? ☐ 0 hr/wk ☐ 1-5 hr/wk ☐ 6-10 hr/wk
☐ 11-15 hr/wk ☐ 16-20 hr/wk ☐ 21 hr/wk or more

For courses with laboratories only:

27. The instructor showed me how to use lab equipment properly.	Never (1)	☐	☐	☐	☐	☐	(5) Always
28. The lab and/or computer equipment was in good operating condition.	(1)	☐	☐	☐	☐	☐	(5)
29. Good laboratory procedures were emphasized	(1)	☐	☐	☐	☐	☐	(5)
30. Relative to other lab experiences, the intellectual challenge presented by the lab assignments was	Much less (1)	☐	☐	☐	☐	☐	(5) Much more
31. Relative to other lab experiences, the clarity and specificity of lab assignment objectives was	Much less (1)	☐	☐	☐	☐	☐	(5) Much more

Your thoughtful answers to the following questions would be helpful to your instructor. (Please answer in the space provided underneath each question.)

What did you particularly LIKE about this course/lab?

What did you particularly DISLIKE about this course/lab?

Can you suggest anything that the instructor could do to improve the quality of teaching?

Would you encourage a friend to take a course from this instructor? Why or why not?

Please use the following to answer additional question(s) that may be provided by your instructor:

Instructor provided ranked question #1	Low rating (1)	☐	☐	☐	☐	☐	(5) High rating
Instructor provided ranked question #2	(1)	☐	☐	☐	☐	☐	(5)
Instructor provided ranked question #3	(1)	☐	☐	☐	☐	☐	(5)
Instructor provided ranked question #4	(1)	☐	☐	☐	☐	☐	(5)
Instructor provided ranked question #5	(1)	☐	☐	☐	☐	☐	(5)
Instructor provided ranked question #6	(1)	☐	☐	☐	☐	☐	(5)
Instructor provided ranked question #7	(1)	☐	☐	☐	☐	☐	(5)
Instructor provided ranked question #8	(1)	☐	☐	☐	☐	☐	(5)

Addendum to CAP/CGSR Motion:
Report from the Task Force on Improvement of Student Course Reports

Date: March 27, 2018

To: Provost Bruce Bursten; Committee on Academic Policy; Committee on Graduate Studies and Research

From: Task Force on Improvement of Student Course Reports: Jill Rulfs, Chair (BBT); Anne-Marie Bryant (Ph.D.candidate, CBC), Terri Camesano (Dean of Graduate Studies), Madeline Chudy (BME '20), Chrysanthe Demetry (ME, Morgan Teaching and Learning Center); Natalie Farny (BBT, Morgan Teaching and Learning Center), Arthur Heinricher (Dean of Undergraduate Studies), Kristin McAdams (Director of Academic Programs), Kathy Notarianni (FPE), Suzanne Scarlata (CBC), Patricia Stapleton (SSPS), Craig Wills (CS)

Re: Report from the Task Force on Improvement of Student Course Reports

On September 15, 2017, Provost Bruce Bursten announced the creation of a Task Force on Improvement of Student Course Reports and outlined its charge (see Appendix C). After CAP, CGSR, SGA, and GSG made their appointments, the group convened in November 2017. In this report we present our findings and recommendations, organized by the action items in our charge.

Work with the Committee on Tenure and Academic Freedom and the Committee on Appointments and Promotion to make any necessary changes in how these committees use course report data

Currently CTAF considers the summary data for every question on the Student Course Report survey for each individual course that a probationary faculty member has taught. Despite the apparent perception that the focus is on a particular subset of questions, the committee broadly reviews these data and may discuss specific aspects which deserve further conversation as evidence in the case at hand. These data are one piece of evidence relevant to high quality teaching. Others include teaching innovations, specifically solicited confidential comments from current and former students, and the review of project reports, theses and dissertations advised by the candidate. Candidates are free to include any other measures of high quality teaching they feel are appropriate as part of their dossier.

As is the case for CTAF, COAP also receives the summary data from student course reports and confidential comments from current and former students. Laudably, COAP is now also requiring that a teaching portfolio be part of a candidate's promotion package.

Thus, as long as candidates supply multiple forms of evidence about teaching quality, and as long as CTAF and COAP live up to their commitment to weigh multiple forms of evidence, no significant changes are necessary in how these committees use course report data. To the extent that student ratings decline across campus when we shift to an online process, the committees will be able to re-norm. At the same time, the committees should make note of response rates on the summaries they examine and use caution in drawing conclusions if the response rate is low.

Review best practices on the use of student feedback to improve and evaluate teaching.

The official title of the group is the Task Force for Improvement of Student Course reports. The charge also suggests this is an opportunity to make significant improvements to our collection and use of student feedback to improve teaching at WPI. Given the breadth of this possibility and limited time, the committee chose to focus our efforts primarily on: 1) reviewing best practices for achieving high response rates when moving to an on-line system; and 2) enhancing the use of student feedback to improve teaching by providing the ability for each instructor to customize the questions for individual courses.

We reviewed the relevant literature regarding several concerns about moving to an online system that had been raised by the WPI faculty.

In regard to the effects of bias on course report outcomes, many studies have reported significant biases in student ratings of instruction based on numerous factors including gender, academic subject, expected grade, minority status, age, physical appearance, and sexual orientation (Basow and Martin 2012). However, there is no indication that this is any different for evaluations collected online compared to those completed using paper forms. Therefore, the presence of bias is not a compelling argument against implementation of online evaluations.

Another concern was a drop in response rate. In general across universities, on-line response rates are 20-30% lower than paper. A recent review asserted that response rates for paper evaluations are generally in the range of 70-80%, whereas online response rates are typically 50-60% (Goodman, Anson & Belcheir, 2015). Such a drop was seen in AY 2016-17 at WPI, when faculty had the option to use an on-line version of the standard student course report. During that period, the average response rate for paper evaluations was about 77%, and the average response rate for on-line evaluations was about 47%. Low response rates raise concerns about whether the results are representative and generalizable (Weimer, 2016).

We also reviewed current practices from other schools who use on-line collection systems.

Our review of relevant literature suggests there is no evidence based or best practices model to provide a combination of strategies that will work to increase online response rates for every institution (Berk, 2012). However, a number of strategies have been used successfully, with online response rates getting back above 70% and even as high as 90% at some schools. Strategies can be grouped into those that are administered at the institutional level and those that are controlled by instructors. It appears that using incentives has had the most impact (Weimer, 2016). Incentives can be controlled by the institution and/or by instructors. Berk (2012) reported that early posting of grades produced the highest increase in response rate of any single strategy and that numerous institutions report that strategy to be extremely effective. Other incentives include rewarding students with "extra credit" points or other non-point options (prizes, opportunities, etc.). Rewards for meeting class threshold response rates (85% of the class responded) were as effective as individual rewards (Goodman, Anson, Belcheir, 2015). These findings are mostly consistent with the results from a survey of WPI students deployed by the Student Government Association. One hundred eighty students responded, and the results are summarized below. It is possible that early access to grades is not as attractive to our students since the grading turnaround period at WPI is already quite fast.

Question: Which option would incentivize you most to complete an online course report? (select as many as apply)	% of students who selected this response
If a certain % of the class fills out the report, bonus points will be given to all	83
Rewards for filling out all course reports such as prizes, food, or access to an event	61
Time will be left in class to fill out course reports online	51
Students who fill out course reports will be able to see grades earlier	29

Impressive response rates (74-92%) have been achieved at Flagler College without the use of incentives. Their method is communication-intensive and proceeds as follows:

- A social media/campus media blast begins several days prior to administration ("brace yourselves, course evals are coming), followed by an initial email at the beginning of administration with a serious tone: why they're important, student responsibility in completing them, a reminder to follow faculty instructions about when to complete it.
- Faculty are asked to set aside a day and time for students to complete the evaluation in class and are given talking points. Loaner tablets are available to students who don't have a laptop or mobile device.
- Follow-up email reminders are less formal in tone. Some are based on examples of how faculty have used results to make a change. Others are clever or humorous messages, images, or memes crafted by fellow students. Email subject lines and appeals in the message ("OK, pretty please") vary for each reminder.

After paper to online transition using this method, faculty at Flagler were pleased with: 1) increased number and extent of comments; 2) good response rates; 3) less loss of class time; and 4) customization options.

Stanford University recently revamped its online course evaluation system with the goal of increasing use of the data as a resource by both students and faculty. For students, the forms are now shorter and easier to complete, with only nine questions. Three of those questions are open-ended, and students are given access to responses for one of them. Benefits for faculty include a greater focus on student learning and the ability to customize the form for individual courses. No recent data about response rates at Stanford are available.

We collected data from student and faculty stakeholders at WPI.

Using a Qualtrics survey, we solicited faculty input regarding the importance of the current question list in helping inform and improve their teaching practices. SGA employed a Google survey to ask undergraduate students about what data from previous years they found important.
The summary data from those surveys are attached as Appendix A. These surveys provided the basis for the Task Force recommendation for a shorter student course report to be used beginning in AY 18/19.

We consulted with the technical support people from Class Climate about the available options of using that as our on-line collection system.

Using Class Climate, instructors will be able to choose from a Question Library of premade questions. Additionally, Class Climate allows each instructor the opportunity to add course specific questions (e.g. progress on learning outcomes, evaluation of course elements such as projects, problem sets, etc.). This should support individual assessment of and improvement of teaching practices. We can integrate Class Climate with Canvas, which would provide faculty with an interface to get at their individual data through a Canvas "My Survey Dashboard" link. Additionally if instructors are provided with a Class Climate logon, they can see their own report history, providing a longitudinal view of scores across time which will be helpful in identifying areas for continued improvement as well as areas where efforts in that regard have been successful. Some additional features of Class Climate are included in Appendix C. Unfortunately, survey open and close dates cannot be controlled by individual instructors.

Deliver a report to CAP and CGSR on ways to improve our student course reports in the future.

The Task Force makes the following recommendations on ways to improve our course reports:

1. Identify a smaller universal set of questions which students in all courses would be asked to complete. The goal in decreasing the number of questions is to make the survey easier for students to complete and thus to increase response rate. We have provided a proposed set of 16 questions in Appendix B. We have also included the question about hours spent out of the classroom which is necessary for administrative reporting for accreditation.

2. Provide a set of Question Libraries from which faculty could select to customize their individual surveys. Initially these should include the set of questions currently used to evaluate laboratory courses as one Question Library. Another Library could include all of the current questions that are not included in the new, shorter version so that faculty could select those they would like to continue to use. Eventually we recommend developing a Library of questions for use in on-line and hybrid courses. To this end, we have included a link to the IDEA Center in our reference list. Beginning with the current set, we might also develop a library of open-ended prompts.

3. Deploy the evaluations on-line using Class Climate and link it to the Canvas LMS to provide faculty with additional options to customize individual surveys. Instructors can download the results of their evaluations from Class Climate on a course-by-course basis and can use these data in teaching portfolios or provide them as part of a tenure or promotion package at their discretion. Instructors will also be able to view and monitor the response rate for their courses through Canvas.

4. Make the results of the 16question evaluation available to the community, as is the current practice. We also recommend a campus campaign to make students aware of their ability to access course evaluation data and suggest referring this to CASL for further development.

5. Begin online evaluation system in A term, 2018. At this time, we are not proposing any institution-wide incentive such as early access to grades. Rather, we recommend institute-wide marketing/communication strategies combined with strategies controlled by faculty. Specific suggestions for implementation that should ensure smooth deployment and adequate response rates include:

- Prior to the implementation, provide detailed instructions/workshops to faculty to facilitate their development of individualized surveys should they wish to do so.
- Faculty are encouraged to provide time in class for students to complete online course evaluations. Faculty may wish to alert students to the date on which this extra time will be provided so that they may bring an electronic device (laptop, tablet or smart phone) to class.
- Faculty may incentivize participation by offering points or other incentives if the class reaches a certain threshold of responses (note that rewards to particular students will not be possible because of student anonymity)
- Course report surveys should be available to students for the final week (5 class days) of each term. This will reduce the need to send multiple reminders to students, which they report are bothersome. We recommend that surveys close on the final day of classes for each term and not later, so as not to be available after final grades are posted.
- CAP is encouraged to work with SGA to develop a social media campaign to raise awareness of the value of completing course reports, to customize the reminder messages, and to continue to examine the possible incentives to student participation.

6. The online course report system should be thoroughly evaluated three years after its initial implementation in A term 2018. We suggest that this evaluation should include but is not limited to:

- An examination of response rates and the effectiveness of particular incentives
- The effectiveness with which the course report data are disseminated, both to faculty and to students
- A survey of faculty and students regarding any concerns or comments they may have regarding the format or process.

Resources Required

The task force notes that effective initiation and implementation of online course reporting will require some commitment of resources on the part of the administration, which may include but is not limited to the following:

1. A Canvas liaison from the Academic Technology Center, to facilitate the integration of Class Climate and Canvas;
2. Direct consulting with an expert from Class Climate (estimated 4 hours at $250 per hours for a total of $1000);
3. Temporary IT assistance during the summer of 2018 to facilitate the initial set up of the Class Climate system and prepare for institute-wide deployment;
4. Faculty or staff support to develop and deliver workshops to educate faculty on the features of the online course reporting system;
5. Student worker support to develop a social media campaign to raise awareness of the value of completing course reports, to customize the reminder messages to students, and to assist in other aspects of the deployment and management of the system.

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Basow, S. A., Martin, J. L. (2012). Bias in Student Evaluations. In M. E. Kite (Ed.), Effective evaluation of teaching: A guide for faculty and administrators. Retrieved from: http://teachpsych.org/ebooks/evals2012/index.php

Berk, R.A. (2012). *Top 20 Strategies to Increase the Online Response Rates of Student Rating Scales*, International Journal of Technology in Teaching and Learning, 8(2), 98-107.

Goodman, J., Anson, R., & Belcheir, M. (2015). *The Effect of Incentives and Other Instructor-Driven Strategies to Increase Online Student Evaluation Response Rates*, Assessment & Evaluation in Higher Education, 40(7), 958-970.

Weimer, M. (2016). Course Evaluations: *How ~~Can~~ Should We Improve Response Rates*, The Teaching Professor Blog in Faculty Focus, Magna Publications. Madison, WI, www.magnapubs.com.

IDEA Student Ratings of Instruction Using Additional Questions for Online Courses
https://www.ideaedu.org/Portals/0/Uploads/Documents/Paper-IOL/Supporting%20materials/using-additional-questions-online.pdf IDEA Education, Manhattan, KS, IDEAedu.org

Appendix A: **Summary student and faculty survey data**

Undergraduate Student Survey Data (n=180)

Question: Which topics are most important when looking back on previous year's ratings?	% of students who selected this response
Overall rating of the course/instructor	99
Amount of work outside of class	84
Exams were a good measure of the material covered	83
Instructor's ability to communicate objectives and speak clearly	66
Grades returned in a timely manner and were fairly determined	66
Instructor was well prepared and used course time effectively	61
Instructor's personal interest in your success	60
Instructor respected students	56
Intellectual challenge presented by the course	53
Amount students learned from the course	51
Value of the textbook/assigned work	49
Organization of the course	43
Effort put into class	42
Average attendance and participation	40
Expected grade	39
Intstructor taught students how to use lab equipment properly	21
Question: Which option would incentivise you most to complete an on-line course report?	**% of students who selected this response**
If a certain % of the class fills out the course report, bonus points will be given to all	83
Rewards for filling out all course reports such as prizes, foof, or access to an event	61
Time will be left in class to fill out course reports on-line	51
Students who fill out course reports will be able to see grades earlier	29

Graduate Student Survey Data (n=103)

	yes
""2. My overall rating of the instructor's teaching is""	97
""1. My overall rating of the quality of this course is""	95
""7. The instructor's skill in providing understandable explanations was""	93
""21. Instructor feedback on exams/assignments was timely and helpful.""	92
""17. The instructor was well prepared to teach class.""	86
""22. The exams and/or evaluations were good measures of the material covered.""	86
""5. The instructor's organization of the course was""	85
""11. The instructor's personal interest in helping students learn was""	85
""4. The educational value of the assigned work was""	84
""20. The instructor treated students with respect.""	82
""14. The amount of reading", homework," and other assigned work was""	77
""18. My instructor used course time effectively.""	77
""23. My grades were determined in a fair and impartial manner.""	76
""10. The intellectual challenge presented by the course was""	73
""19. The instructor encouraged students to ask questions.""	73
""8. The instructor's skill in speaking clearly and audibly was""	72
""6. The instructor's clarity in communicating course objectives was""	70
""9. The amount I learned from the course was""	69
""3. The educational value of the textbook and/or assigned reading was""	68
""12. The instructor stimulated my interest in the subject matter""	68
""26B. On average", what were the total hours spent in each 7-day week OUTSIDE of formally scheduled class time in work related to this course	67
""28. The lab and/or computer equipment was in good operating condition.""	64
""29. Good laboratory procedures were emphasized""	64
""27. The instructor showed me how to use lab equipment properly.""	63
""13. The instructor encouraged communication outside of regular contact hours""	60
""31. Relative to other lab experiences"," the clarity and specificity of lab assignment objectives was""	57
""16. The amount of effort I put into this course was""	56
""30. Relative to other lab experiences"," the intellectual challenge presented by the lab assignments was""	54
""26A. On average", how many hours of the formally scheduled hours for lecture, conference," and labs did you ATTEND each week?""	49
""25. Which of the following best describes the role of this course in your academic program?""	48
""15. My attendance and participation for this course was""	42
""24. What grade do you think you will receive in this course?""	36

Faculty Survey Data

Question: For each of the following questions, please indicate Yes or No. "Do you find the responses to this evaluation question useful in reflecting on or improving your teaching?"

	yes
""2. My overall rating of the instructor's teaching is""	90
""1. My overall rating of the quality of this course is""	87
""7. The instructor's skill in providing understandable explanations was""	84
""20. The instructor treated students with respect.""	81
""19. The instructor encouraged students to ask questions.""	77
""4. The educational value of the assigned work was""	75
""6. The instructor's clarity in communicating course objectives was""	74
""11. The instructor's personal interest in helping students learn was""	74
""5. The instructor's organization of the course was""	73
""17. The instructor was well prepared to teach class.""	73
""21. Instructor feedback on exams/assignments was timely and helpful.""	73
""10. The intellectual challenge presented by the course was""	71
""9. The amount I learned from the course was""	69
""26B. On average", what were the total hours spent in each 7-day week OUTSIDE of formally scheduled class time in work related to this	68
""12. The instructor stimulated my interest in the subject matter""	67
""18. My instructor used course time effectively.""	63
""22. The exams and/or evaluations were good measures of the material covered.""	62
""8. The instructor's skill in speaking clearly and audibly was""	61
""16. The amount of effort I put into this course was""	61
""23. My grades were determined in a fair and impartial manner.""	56
""14. The amount of reading", homework," and other assigned work was""	54
""3. The educational value of the textbook and/or assigned reading was""	51
""26A. On average", how many hours of the formally scheduled hours for lecture, conference," and labs did you ATTEND each week?""	45
""25. Which of the following best describes the role of this course in your academic program?""	42
""24. What grade do you think you will receive in this course?""	40
""13. The instructor encouraged communication outside of regular contact hours""	39
""15. My attendance and participation for this course was""	34
""29. Good laboratory procedures were emphasized""	28
""30. Relative to other lab experiences"," the intellectual challenge presented by the lab assignments was""	28
""27. The instructor showed me how to use lab equipment properly.""	27
""28. The lab and/or computer equipment was in good operating condition.""	27
""31. Relative to other lab experiences"," the clarity and specificity of lab assignment objectives was""	25

Appendix B: **Recommended Questions for the shorter student course evaluation instrument**

These questions are those that $\geq$ 66% of faculty (140 responses) and/or students (180 responses) felt were important. All would be included with the Likert scale of responses currently provided. The final question which is included in part to collect data for administrative purposes, will have its own scale, as it currently does.

My overall rating of the instructor's teaching is
My overall rating of the quality of this course is
The instructor's skill in providing understandable explanations was
The educational value of the assigned work was
The instructor's clarity in communicating course objectives was
The instructor's personal interest in helping students learn was
The instructor's organization of the course was
The intellectual challenge presented by the course was
The amount I learned from the course was
The instructor treated students with respect.
The instructor encouraged students to ask questions.
The instructor was well prepared to teach class.
Instructor feedback on exams/assignments was timely and helpful.
The instructor stimulated my interest in the subject matter.
Exams were a good measure of the material covered.
Grades were returned in a timely manner and were fairly determined.

On average, what were the total hours spent in each 7-day week OUTSIDE of formally scheduled class time in work related to this course (including studying, reading, writing, homework, rehearsal," etc.)?

Appendix C: **Class Climate Features Available with Online Implementation**

- An instructor interface will be accessible through a link sent by email from the system administrator or through integration with Canvas.

- Instructors (and programs) will be able to customize surveys in two ways:
    - Choosing from a library of premade questions (e.g., for lab courses, GPS courses, online courses)
    - Adding individually-designed questions

  Of course, the additional instructor-provided questions will be visible on the survey and on the data report, which has not been the case with paper surveys.

- Instructors will be able to analyze their own data and examine individual records by exporting a .csv file. This will preserve the ability, available on paper, to connect individual comments with numeric ratings.

- The system administrator will be able to do the following in an effort to increase response rates:
    - Schedule customized email reminders
    - Send notifications to instructors if their response rate is below a certain point with X days to go before survey closure

- If integrated with Canvas, Instructors will be able to monitor response rate for their courses.

- If instructors want students to complete the survey in class on a specific day, they can generate QR codes and passwords and distribute them in class on a day when students are instructed to bring their own device. (Of course, instructors could also set aside time in class for students to complete the survey using the link sent by email or available on Canvas.)

Student Government Association
c/o Student Activities Office
100 Institute Road
Worcester, MA 01609-2280, USA
sga@wpi.edu

Worcester Polytechnic Institute
Student Government Association

Tuesday, February 21st, 2017

To the Committee on Academic Policy:

We, the Undergraduate Student Government Association of Worcester Polytechnic Institute, are in full support of the recent CAP initiatives to improve the evaluation of teaching at WPI and to create a taskforce with the purpose of moving course evaluations to a fully online platform.

Specifically, the Committee on Academic Improvements (CAI) of the Undergraduate Student Government Association offers its support in the form of student input, public relations with the student body, and other tasks that said taskforce might delegate to CAI.

Thank you for responding to a popular concern among our student body, and taking concrete steps to ensure that positive change continues on WPI's campus.

Sincerely,

Jacob St Germain

Jacob St Germain
sgapresident@wpi.edu
President of SGA

Sarah Boecker

Sarah Boecker
sgacaichair@wpi.edu
Chairperson of CAI

Date: April 12, 2018
To: WPI Faculty
From: Committee on Graduate Studies and Research (Prof. Troy, Chair)
Re: Motion to modify policies related to Academic Standards for Graduate Students

Motion: The Committee on Graduate Studies and Research recommends and I move that the Academic Standards for graduate students be revised to provide earlier warning to students who are not achieving academically and to ensure that the highest quality graduate students continue studies in our graduate programs, as described below.

Description of the Proposed Revisions:

Current wording (WPI Graduate Catalog 2017-2018, pg. 16)**:**

Academic Standards

Students must maintain high academic standards in all their program activities. After attempting 12 credit hours, all students must maintain an overall grade point average (GPA) above 2.75 to be considered as making satisfactory progress.

If a student's overall GPA falls to 2.75 or below, the student and advisor are notified by the Registrar that the student is not making satisfactory progress.

If the overall GPA of any student falls below 2.65, the Registrar will inform the student that all future registrations will be given grades only on a pass/fail basis unless the department Graduate Committee intervenes.

If the overall GPA of any student falls below 2.50, the student is removed from the program unless the department Graduate Committee intervene.

A student is expected to expend at least 56 hours of total effort (including classroom time) for each graduate credit. This means that a student in a 3-graduate credit 14-week course is expected to expend at least 12 hours of total effort per week. A student in a 2-graduate credit 7-week course is expected to expend at least 16 hours of total effort per week.

Proposed Wording:

Academic Standards

To be considered in good academic standing, graduate students must maintain a cumulative overall GPA of 3.0. Cumulative overall GPA includes all work taken since matriculation, and any coursework taken before matriculation as a graduate student, provided it has not already been counted towards another degree (exception: courses used for another WPI degree that are specifically authorized by the appropriate graduate committee to be double-counted will be included in the new degree's GPA once processed by the Registrar). Transfer credit approved from other schools is not counted in the GPA. Students are reviewed at the conclusion of each semester they are enrolled. Students who fall below the minimum standard of 3.0 cumulative overall GPA will be placed in Academic Warning.

If a student earns a grade lower than C in three or more courses, or if the cumulative overall GPA falls at or below 2.5 after attempting a minimum of 8 credits, the student is academically dismissed.

Academic Warning: Students have one semester of course work to raise their cumulative overall GPA. Students who do not improve their GPA upon the next review will move down to the next level of standing. Students who do not have a cumulative overall GPA of at least 3.0 will remain in Academic Warning.

Academic Probation: Students have one semester of course work to raise their cumulative overall GPA. Students who improve their GPA but still remain below 3.0 will be moved up to Academic Warning. Students who do not improve their GPA upon the next review will move down to the next level of standing.

Academic Dismissal: Students are academically withdrawn from the University. Students may appeal dismissal by submitting a petition to the University Registrar.

Academic standing appeal procedure:
Student petitions will be reviewed by the Committee on Graduate Studies and Research. A representative from the student's home department will be present during the appeal process. This petition must be submitted with any supporting documentation no later than the date specified in the dismissal letter, typically two weeks after semester end.

Failure to complete degree milestones as specified by department/program:
If a student is in otherwise good standing but fails to meet specified degree milestones, they may be dismissed from the program by the department graduate committee (see individual programs for specifics). Should this happen, the Dean of Graduate Studies and the Registrar will be notified, and the student will be academically dismissed from WPI. The student may formally apply to another degree program, but they may not attend WPI unless they matriculate to another degree program. At the department's discretion, the student may be allowed to take a lesser credential (e.g. a PhD student may be allowed to take a master's degree, or a master's student may be allowed to take a graduate certificate) if not already conferred. In this case, if necessary, the student will be allowed to complete that credential before leaving WPI.
A student is expected to expend at least 56 hours of total effort (including classroom time) for each graduate credit. This means that a student in a 3-graduate credit 14-week course is expected to expend at least 12 hours of total effort per week. A student in a 2-graduate credit 7-week course is expected to expend at least 16 hours of total effort per week.

Rationale:
The current policy allows graduate students to be below graduation standards without any warning that they are at risk, and includes rules that do not help students improve the GPA while still allowing them to take coursework. This change would both ensure that we are doing our due diligence by identifying students at risk and giving them opportunities to improve and that the highest quality students continue to pursue degrees at WPI. Additionally, the redesigned policy and the creation of a subcommittee to hear appeals of standing would mirror Undergraduate processes and ensure consistency in decision making.

CGSR reviewed peer institutions' policies for academic standing (see appended document). In general, institutions require a 3.0 cumulative GPA or equivalent to make satisfactory progress toward a degree. Most were extremely strict in adherence to this rule; Tufts, for instance, dismisses immediately for a GPA below 3.0 unless the department intervenes. The committee seeks to set a best practice policy for WPI that still adheres to our unique mission.

The numbers of students that fall under the current policy are shown in the chart attached. We have also included the number of students who either a) have less than a 3.0 cum GPA but above a 2.75, and therefore may not be able to graduate or b) have attempted less than 12 credits and have a cum GPA below 3.0. For the last three semesters, students who fall in that category have received a letter reminding them of the 3.0 degree program GPA graduation requirement. Additionally, we have attached the number of students whose transcripts reflect an overall GPA that is less than 3.0. Per the catalog and according to best practices, although some courses in a student's graduate history may not ultimately be counted toward the degree, the cumulative overall GPA for all coursework is printed on the transcript along with all the courses taken as a graduate student, whether used toward the degree or not. The proposed policy for academic standards may benefit the reputation of WPI graduate studies by providing earlier intervention for these students to get them back on track.

Ways a student can improve their GPA:

1. Repeat a course. The catalog allows the more recent grade to be counted, and excludes the earlier attempt. The earlier attempt appears on the transcript and is indicated as repeated, but is not calculated in the GPA.
2. Withdraw from the course if it is apparent that the grade will not be acceptable. Students may withdraw through the 10th week of courses. Exceptions to this rule can be petitioned to the Registrar if there is an extenuating circumstance (e.g. illness).
3. If professor is willing, student may be allowed to take an incomplete to do an extra assignment and improve the grade, or to improve an already given grade.

Appendix: Consent Agenda Motions

Date: April 12, 2018
To: WPI Faculty
From: Committee on Academic Operations (Prof. A. Zeng, Chair)
Re: Motion to change the course description for MA 3831 Principles of Real Analysis I

Motion: On behalf of the Mathematical Sciences Department, the Committee on Academic Operation recommends and I move that the course description for MA 3831 Principles of Real Analysis I be changed as described below.

Description of the Motion:

Current Course Description:
MA 3831 Principles of Real Analysis I (Cat. I)
Advanced Calculus is a two-part course giving a rigorous presentation of the important concepts of classical real analysis. Topics covered in the two-course sequence include: basic set theory, elementary topology of Euclidean spaces, limits and continuity, differentiation Reimann-Stieltjes integration, infinite series, sequences of functions, and topics in multivariate calculus. Recommended background: MA 2051 and MA 2071.

This course is offered in A term and C term.

Proposed Course Description:
MA 3831 Principles of Real Analysis I (Cat. I)
Principles of Real Analysis is a two-part course giving a rigorous presentation of the important concepts of classical real analysis. Topics covered in the sequence include: basic set theory, elementary topology of Euclidean spaces, metric spaces, compactness, limits and continuity, differentiation, Riemann-Stieltjes integration, infinite series, sequences of functions, and topics in multivariate calculus. Recommended background: at least one course focused on proof-based mathematics (e.g., MA 1971 Bridge to Higher Mathematics, MA1033 Theoretical Calculus III).

This course will continue to be offered in A term and C term.

Rationale:
To bring the course description in-line with current catalog standards, it is being edited for grammar, spelling, extended enumeration of topics and clearer expectations of background.

Impacts on students: None

Resource Needs: No change

Implementation Date: Academic Year 2018-2019

Date: April 12, 2018
To: WPI Faculty
From: Committee on Academic Operations (Prof. A. Zeng, Chair)
Re: Motion to change the course description for MA 3832 Principles of Real Analysis II

Motion: On behalf of the Mathematical Sciences Department, the Committee on Academic Operation recommends and I move that the course description for MA 3832 Principles of Real Analysis II be changed as described below.

Description of the Motion:

Current Course Description:
MA 3832 Principles of Real Analysis II (Cat. I)
MA 3832 is a continuation of MA 3831. For the contents of this course, see the description given for MA 3831. Recommended background: MA 3831.

This course is offered in B term and D term.

Proposed Course Description:
MA 3832 Principles of Real Analysis II (Cat. I)
MA 3832 is a continuation of MA 3831. For the contents of this course, see the description given for MA 3831. Recommended background: introductory knowledge in real analysis (e.g., MA 3831 Principles of Real Analysis I, or equivalent).

This course will continue to be offered in B term and D term.

Rationale: To bring the course description in-line with current catalog standards, it is being edited for clearer expectations of background.

Impacts on students: None

Resource Needs: No change

Implementation Date: Academic Year 2018-2019

Date: April 12, 2018
To: WPI Faculty
From: Committee on Academic Operations (Prof. A. Zeng, Chair)
Re: Motion to change the course offering schedule for BB 3040 Experimental Design and Data Analysis

Motion: On behalf of the Biology & Biotechnology Department, the Committee on Academic Operation recommends and I move, that the course offering schedule for BB 3040, Experimental Design and Data Analysis, be changed as described below.

Description of the Motion: (with deleted text ~~struckthrough~~; added text in *underlined italics*)

BB 3040. EXPERIMENTAL DESIGN AND DATA ANALYSIS.
Cat. II
This applied course introduces students to the design of experiments and analysis of data. A combination of lecture, reading and discussion will be used to cover a variety of experimental situations occurring frequently in modern biology, including testing the fit of data to theoretical distributions, comparisons of groups, and regression analysis. Emphasis will be placed on the formulation of hypotheses, the design of experiments to test a formulated hypothesis, and the will be used to illustrate the importance of experimental control as well as some of the most common errors made in choosing and performing statistical tests. Students will learn to use computer packages to carry out both parametric and non-parametric tests on their own experimental data.
Recommended background: a solid background in a biological area at about the depth provided by any BB 3000 or 4000 level course.
This course will be offered in ~~2018-19~~ *2019-20*, and in alternating years thereafter. Students may not receive credit for both BB 4040 and BB 3040.

Rationale:
We are asking to shift the offering of this Cat II class by one year to facilitate a change in instructor. The faculty member who has been teaching this course for the past several years is leaving WPI at the end of this academic year. The shift in course offering for one year will allow the department to reorganize teaching responsibilities to allow another faculty member with expertise in this area to teach the course in the future. As other teaching assignments for next year have already been set, making this change for next academic year is not possible.

Impacts on students: The impact on students will be minimal since statistics is not a requirement for Biology & Biotechnology majors. Additionally there are statistics courses offered by other departments that would give students the opportunity to learn basic statistics, including MA 2610, *Applied Statistics for the Life Sciences* and 2611, *Applied Statistics I.* Both are Cat I courses.

Resource Needs: None

Implementation Date: This shift would allow us to NOT offer this course in AY 18/19 and begin offering it again as a Cat II course beginning in AY 19/20.

Date: April 12, 2018
To: WPI Faculty
From: Committee on Graduate Studies and Research (Prof. K. Troy, Chair)
Re: Motion to modify the Ph.D. degree program requirements in Chemistry and Biochemistry

Motion: On behalf of the Department of Chemistry and Biochemistry, the Committee on Graduate Studies and research recommends and I move to that the Ph.D. degree program requirements be modified as described below.

Description of the proposed modifications:

Current Language in the 2017-18 Graduate Catalog (page 65):
Degree Requirements
Because graduate education in chemistry and biochemistry is primarily research oriented, there are few formal departmental course requirements in the graduate program. However, it is expected that each graduate student will take graduate level courses in areas of chemistry and bio- chemistry that are relevant to their field of specialization, as well as seminar courses. Entering students who have deficiencies in specific areas (inorganic, organic, physical, or biochemistry), as revealed by preliminary examinations, will take appropriate courses to correct these deficiencies.

Proposed Language in the Graduate Catalog: (to replace the language above)
Degree Requirements
Each student must take at least three core courses in their self-identified home track (biochemistry, inorganic, organic, physical), at least three elective courses either from an approved list of classes or pre-approved by the CBC graduate committee, as well as seminar courses. Entering students who have deficiencies in specific areas (inorganic, organic, physical, or biochemistry), as revealed by entrance interviews, will take appropriate courses to correct these deficiencies.

Rationale:
In an effort to provide more structure to our expanding graduate program, we are adding a few specific details to the courses required. Therefore, we would like to update the course catalog to reflect the new requirements in our PhD program.

Our graduate program is growing and we would like more structure to our required course work. The ultimate goal is to create knowledgeable, well rounded students.

Impacts on students: A positive impact on graduate students is expected, as their coursework requirement is more specific. We anticipate they will emerge from the program with a stronger background.

Resource Needs: No extra resources are needed.

Implementation Date: Implementation date for this action is the 2018-2019 academic year and we'd like it to be put in the next available catalog.

Date: April 12, 2018
To: WPI Faculty
From: Committee on Graduate Studies and Research (Prof. K. Troy, Chair)
Re: Motion to add new course CHE 509 Reactor Design and Kinetics

Motion: On behalf of the Chemical Engineering Department, the Committee on Graduate Studies and Research recommends and I move that the new course CHE 509 Reactor Design and Kinetics, as described below, be added and designated as a core course.

Proposed Course Description:

CHE 509: Reactor Design and Kinetics
This course includes a review of prototypical chemical reactors, including design of batch, stirred tank, and tubular reactors. Theories of reaction kinetics and catalysis for simple and complex reactions are addressed. Reactor design is discussed within the context of complex transport phenomena and reaction kinetics, including effects of bulk and pore diffusion and multiphase reactions/reactors. Techniques for experimentation, reaction data treatment, catalyst preparation and characterization, and computational tools are also included. Students cannot receive credit for this course and CHE 506 or CHE 507, which this class replaces.

Rationale:
The proposed course covers fundamental topics of chemical engineering, and therefore an essential part of chemical engineering graduate students' education. The previous courses CHE 506: Kinetics and Catalysis and CHE 507: Chemical Reactor Design covered similar material, but there was significant overlap between the two previous courses. The new course will streamline the content material to bring together the topics of reactors and kinetics into one combined course.

Impact on Degree Requirements: The course will be taught on a yearly basis, and will replace CHE 506 and CHE 507, both which were taught in alternating years. Students will be required to take the current proposed course instead of CHE 506 or CHE 507.

Resources and Anticipated Instructors: No new resources are needed. The current chemical engineering faculty are capable of teaching these core courses.

Implementation Date: Implementation date for this action is the 2018-2019 academic year.

Date: April 12, 2018
To: WPI Faculty
From: Committee on Graduate Studies and Research (Prof. K. Troy, Chair)
Re: Motion to remove CHE 506, CHE 507, CHE 573, and CHE 574

Motion: On behalf of the Chemical Engineering Department, the Committee on Graduate Studies and Research recommends and I move that the courses CHE 506 Kinetics and Catalysis, CHE 507 Chemical Reactor Design, CHE 573 Separation Processes, and CHE 574 Fluid Mechanics be removed.

Rationale:
As part of the revision of the chemical engineering curriculum several courses are no longer needed or to be taught. There is considerable overlap between existing relevant chemical engineering courses (e.g. CHE 506 and 507; CHE 571 and 574). The material of CHE 506 and CHE 507 is to be combined into one course, CHE 509 (see separate motion for this new course). The material of 574 will be included in CHE 571. CHE 573 has not been taught in many years and it is not anticipated to be taught in the future.

Impact on Degree Requirements: CHE 506 and CHE 507 are core courses, but are to be replaced by CHE 509. CHE 573 is not currently being taught in our department so has no impact on degree requirements. Students will now take CHE 571 instead of CHE 574.

Implementation Date: Implementation date for this action is the 2018-2019 academic year.

Date: April 12, 2018
To: WPI Faculty
From: Committee on Graduate Studies and Research (Prof. K. Troy, Chair)
Re: Motion to revise titles and descriptions of CHE 504, CHE 561, and CHE 571

Motion: On behalf of the Chemical Engineering Department, the Committee on Graduate Studies and Research recommends and I move that the titles and descriptions of the chemical engineering courses CHE 504, CHE 561, and CHE 571 be revised as described below.

Current and Proposed Course Titles and Descriptions:

The proposed change is the revision of several chemical engineering courses. CHE 571 is to be re-titled as "Transport Phenomena", while CHE561 is to be re-titled "Thermodynamics". Descriptions of CHE 504, 561, and CHE 571 are also revised.

Current Course Title and Description	Proposed Course Title and Description
CHE 504. Mathematical Analysis in Chemical Engineering Methods of mathematical analysis selected from such topics as vector analysis, matrices, complex variables, Eigenvalue problems, Fourier analysis, Fourier transforms, Laplace transformation, solution of ordinary and partial differential equations, integral equations, calculus of variations, perturbation and asymptotic methods and numerical analysis. Emphasis on application to the solution of chemical engineering problems.	CHE 504. Mathematical Analysis in Chemical Engineering An essential skill of an engineer is to provide analytical and numerical solutions to relevant problems. This course will provide students with a solid mathematical background required to solve chemical engineering problems in fields such as fluid mechanics, reactor design, thermodynamics, and process design. Methods of mathematical analysis relevant to engineering will be selected from such topics as vector analysis, matrices, eigenvalue problems, Fourier analysis, Fourier transforms, Laplace transformation, solution of ordinary and partial differential equations, integral equations, calculus of variation, optimization methods, and numerical methods. Students should have a background in undergraduate calculus and differential equations.

Current Course Title and Description	Proposed Course Title and Description
CHE 561. Advanced Thermodynamics An examination of the fundamental concepts of classical thermodynamics and presentation of existence theorems for thermodynamics properties with study of relations among them. The inequality of Clausius as a criterion for equilibrium in both chemical and physical systems. Examination of thermodynamic equilibrium for a variety of restraining conditions. Applications to fluid mechanics, process systems and chemical systems. Computation of complex equilibria.	CHE 561. Thermodynamics Thermodynamics is at the heart of many systems of interest to chemical engineers, from the efficiency of simple mechanical processes to the equilibria of complex reactions. This course is a rigorous treatment of classical thermodynamics, with reference to the field of statistical thermodynamics. Key modules include First and Second Law analysis; behavior and inter-relationships of thermodynamic properties; and fluid phase and chemical equilibria. Example topics may include analysis of open and dynamic systems; fundamental relationships; Legendre transforms and generalized potentials; Maxwell relationships; stability theory; thermodynamics of mixtures; fugacity, activity, and chemical potential; phase equilibria of systems containing two or more components; and generalized treatment of chemical equilibria.
CHE 571. Intermediate Transport Phenomena Mass, momentum and energy transport; analytic and approximate solutions of the equations of change. Special flow problems such as creeping, potential and laminar boundary-layer flows. Heat and mass transfer in multi-component systems. Estimation of heat and mass transfer rates. Transport with chemical reaction.	CHE 571. Transport Phenomena Transport rates of mass, energy, and momentum are key to the design of many chemical technologies. This class adopts a unified approach to transport phenomena, providing the fundamental background required for analysis of complex problems. Students will use mathematical techniques for analytic and approximate solutions such as: separation of variables, similarity solutions, perturbation theory, and Laplace and Fourier transform methods. Methods involving non-dimensionalization and scaling will be emphasized. Special problems to be covered may include the lubrication approximation, creeping flow, and potential and laminar boundary-layer flows, as well as heat and mass transport in multi-component systems. Students are expected to have taken previous courses on transport processes and have mathematical background that includes solution of differential equations.

Rationale:

The new course titles better represent our current course offerings. That is, the previous title words "Advanced" and "Intermediate" could imply that non-advanced or non-intermediate courses are available, which is not the case. The new course descriptions also better reflect what instructors are teaching in the courses and the relevant topics in the courses.

Impact on Degree Requirements: None

Resources and Anticipated Instructors: No new resources are needed.

Implementation Date: Implementation date for this action is the 2018-2019 academic year.

Date: April 12, 2018
To: WPI Faculty
From: Committee on Graduate Studies and Research (Prof. K. Troy, Chair)
Re: Motion to modify the core course requirements for the M.S. degree in Chemical Engineering

Motion: On behalf of the Chemical Engineering Department, the Committee on Graduate Studies and Research recommends and I move that the designation of chemical engineering core courses be modified as described below.

Proposed Addition to the Graduate Catalog:
(to be added as Table 3 under Degree Requirements for the M.S.)

Core Courses (choose 3)
CHE 504: Mathematical Analysis in Chemical Engineering Kinetics and Catalysis
CHE 509. Reactor Design and Kinetics
CHE 561: Thermodynamics
CHE 571: Transport Phenomena

Rationale:
We have updated our core courses (see accompanying motions). The added table to the graduate catalog will clarify which courses will count as core in the chemical engineering department.

Impact on Degree Requirements: Previously students chose 3 core courses from a set of 7 available courses. In the proposed change, students choose 3 from the available list of 4, which will be offered yearly.

Resources and Anticipated Instructors: No new resources are needed. The current chemical engineering faculty are capable of teaching these core courses.

Implementation Date: Implementation date for this action is the 2018-2019 academic year.

Date: April 12, 2018
To: WPI Faculty
From: Committee on Graduate Studies and Research (Prof. K. Troy, Chair)
Re: Motion to add DS 517/MA 517 Mathematical Foundations for Data Science

Motion: On behalf of the Department of Mathematical Sciences and the Data Science Program, the Committee on Graduate Studies and Research recommends and I move that the new course DS 517/MA 517 Mathematical Foundations for Data Science, as described below, be added.

Proposed Course Description:
DS 517/MA 517 Mathematical Foundations for Data Science
The foci of this class are the essential statistics and linear algebra skills required for Data Science students. The class builds the foundation for theoretical and computational abilities of the students to analyze high dimensional data sets. Topics covered include Bayes' theorem, the central limit theorem, hypothesis testing, linear equations, linear transformations, matrix algebra, eigenvalues and eigenvectors, and sampling techniques, including Bootstrap and Markov chain Monte Carlo. Students will use these techniques while engaging in hands-on projects with real data.
Prerequisites: Some knowledge of integral and differential calculus is recommended.

Preferred Semester: Fall semesters, and offered once annually

Expected enrollment: 25 – 50 students

Anticipated/interested Instructor(s): Professors: Fatemeh Emdad, Randy Paffenroth, and Jian Zou

Rationale:
Data Scientists explore innovative solutions to data analysis problems utilizing linear algebra, statistics and programming skills. Data Scientists are expected to know the basic concepts, algorithms, limitations and underlying assumptions of the mathematical foundations of data science to facilitate tackling practical problems. Data often is high dimensional, composed of many variables that are represented by matrices, and their analysis can be modeled as linear algebra operations. Two fundamental skill sets for the graduate Data Science students are thus linear algebra and applied mathematical statistics. The Data Sciences curriculum lacks a course dedicated to these two fundamental studies in one integrated course.

Data Science students come from a variety of backgrounds, including but not limited to the core disciplines of Business, Computer Science, and Mathematical Sciences, along with other science and engineering fields. All Data Science students are expected to have strong grounding in at least one of these academic disciplines, but they are not expected to hold a strong background in all three. Accordingly, some students in the Data Science program do not have as robust a mathematical background as students whose undergraduate focus was mathematics.

The proposed course '*Mathematical Foundations for Data Science'* is thus designed to be an introduction to the concepts and techniques of linear algebra, and the fundamentals of probability and applied statistics methods, commonly used in Data Science. This course will be structured to be accessible to every student who is interested in Data Science and is approaching it for their first time, and who require a grounding in some of the key mathematical concepts for Data Science.

Currently, some of this material is taught as part of DS502/MA543, but that class is intended to be a more advanced course that forms one of the building blocks of the Data Science Core Curriculum.

Instructors for DS502/MA543 have consistently found over the last four cohorts of the Data Science program that they need to cover these fundamental materials. This detracts from the educational experience of the more mathematically capable Data Science students. This perspective is also supported by anecdotal feedback from graduate students who have taken DS502/MA543 during the last four cohorts of the Data Science Program.

Currently, students whose mathematical background is not sufficient to be successful in DS502/MA543, have been encouraged to take MA511, *"Applied Statistics for Engineers and Scientists."* While MA511 is satisfactory for getting Data Science students current on the required statistics background, this class unfortunately does not cover the linear algebra background required for Data Science. It has been suggested that Data Science students who need grounding in statistics and linear algebra could take both MA511 and MA502 *"Linear Algebra."* However, it is the view of the Data Science program that having students take two additional such foundational courses would subtract from their ability to take electives in Data Science that are more advanced.

We expect these courses to maintain a consistently high enrollment since scientific applications in biology, chemistry, and healthcare are among the major driving applications behind data modeling and analysis. Therefore, the proposed course, '*Mathematical Foundations for Data Science*,' will serve a wide range of science and engineering students beyond the DS students. This course will provide students with a mathematical foundation related to Data Science, and as such, will be central to enabling students from a variety of majors to learn the fundamentals of statistics and linear algebra so that they can succeed in the Data Science program at WPI (and quite likely also other majors at WPI).

Intended Audience: The intended audience for '*Mathematical Foundations for Data Science' is* students from all majors interested in learning about the fundamentals of statistics and linear algebra necessary for Data Science, including those students whose primary focus is Data Science, Computer Science, IT, Engineering, Business, and Business Management.

Resource Requirements
a) Currently available resources: Professors Fatemeh Emdad, Randy Paffenroth, and Jian Zou
b) A traditional classroom with the capacity to hold 25-50 students.

Impact on Core Area Requirements of the Data Science Program and Other Courses: Students of all majors may take this course as a free elective. For Data Science students with limited mathematical background, it will be a recommended course taken during their first semester, and before they take DS502 Statistics for Data Science.

Effective Date: It is the Graduate Studies and Research Committee's proposal that '*Mathematical Foundations for Data Science'* be added to the Data Science program curriculum for the Academic Year 2018/2019, and be added to the WPI Course Catalog at that time.

Date: April 12, 2018
To: WPI Faculty
From: Committee on Graduate Studies and Research (Prof. K. Troy, Chair)
Re: Motion to add MFE 590 Capstone Project in Manufacturing Engineering

Motion: On behalf of the Manufacturing Engineering Program, the Committee on Graduate Studies and Research recommends and I move that a new capstone course MFE 590 Capstone Project in Manufacturing Engineering, as described below, be added.

Proposed Course Description:

MFE 590: Capstone Project in Manufacturing Engineering
The new capstone course (MFE 590) will provide a practical experience for the students in the M.S. MFE Program to synthesize their learning and to apply knowledge to solving real-world manufacturing problems. The projects will be sponsored by either internal units on campus or external organizations. In addition to a written report, the project results will be formally presented to the class, outside sponsors and other interested parties.

Rationale:
The new capstone, 3-credit course (MFE 590 Capstone Project in Manufacturing Engineering) is required for the MS in Manufacturing Engineering and will provide a practical experience for the students in the M.S. MFE Program to synthesize their learning and to apply technical and scientific knowledge with Systems thinking, complex problem solving and creativity to their projects.

Resources Needed: This course will be team taught by existing faculty from Operations and Industrial Engineering, Manufacturing Engineering/Materials Science Engineering, and Systems Engineering.

Implementation: Effective AY 2018 - 2019

Date: April 12, 2018
To: WPI Faculty
From: Committee on Graduate Studies and Research (Prof. K. Troy, Chair)
Re: Motion to change the degree requirements for the M.S. in Manufacturing Engineering

Motion: On behalf of the Manufacturing Engineering Program, the Committee on Graduate Studies and Research recommends and I move that the degree requirements for the M.S. in Manufacturing Engineering be changed, as described below.

Description of the Proposed Degree Requirements for the M.S. in Manufacturing Engineering:

(The requirements presented below will replace the current degree requirements stated on Pages 114-115 of the 2016-17 Graduate Catalog - provided at the end of this motion - and pages 118-119 of the 2017-18 Graduate Catalog)

Degree Requirements for the M.S.:

For the Master of Science in Manufacturing Engineering, the student is required to complete a minimum of 30 graduate credit hours. The course requirements are presented below. For the remaining credits, the student will choose between a thesis or Non-Thesis option.

Thesis Option
The student must complete a thesis with a minimum of six graduate credits. Additional thesis credits may substitute for elective courses. All elective courses must be approved by the student's advisor and the Director of Manufacturing Engineering or the Manufacturing Engineering Graduate Committee.

Non-Thesis Option
In addition to the course requirements in the four core areas a Capstone Project is required. This Capstone Project requirement can be met by successful completion of MFE590 Capstone Project in Manufacturing Engineering or with a three credit Independent Study or Directed Research project in Manufacturing Engineering. All elective courses must be approved by the student's advisor and the Director of Manufacturing Engineering or the Manufacturing Engineering Graduate Committee.

Course Requirements
The Manufacturing Program is designed to focus on four core areas: the manufacturing process and design, materials processing, systems engineering and production/operations management. These topics are important to the design and control of the factories of the future. The MS in Manufacturing Engineering requires 30 graduate credits. The course requirements are presented below.

> **Manufacturing Process and Design:** (4-6 graduate credits)
> MFE510 Control and Monitoring of Manufacturing Processes (3)
> MFE520 Axiomatic Design of Manufacturing Processes (3)
> MFE531 Computer Integrated Manufacturing (2)
> MFE541 Design for Manufacturability (2)
>
> **Materials Processing** (5-6 graduate credits)
> MTE550 Phase Transformations (3)
> MTE511 Structure and Properties of Engineering Materials (2)
> MTE512 Properties and Performance of Engineering Materials (2)
> Any other MTE5XXX course with the approval of the program director

Systems Engineering: (6 graduate credits)
SYS 501 Concepts of Systems Engineering (3)
SYS 502 Business Practices (3)
SYS 540 Introduction to Systems Thinking (3)
SD 550 Systems Dynamics Foundations: Managing Complexity (3)

Production/Operations Management: (6 graduate credits)
OIE500 Analyzing and Designing Operations to Create Value (3)
OIE544 Supply Chain Analysis and Design (3)
OIE548 Productivity management (3)
OIE553 Global Purchasing and Logistics (3)
OIE555 Lean Process Design (3)
OIE558 Designing and Managing Six Sigma Processes (3)

Capstone Project: (3 graduate credits)
MFE590 Capstone Project in Manufacturing Engineering (3)

Electives: (3-6 graduate credits)
Select from any graduate science or engineering course, with approval of the program director.

Rationale:
The new degree requirements are developed based on the inputs from the Manufacturing, Materials, Mechanical, Industrial and Systems Engineering faculty. These new degree requirements reflect our best thinking on the needs of the manufacturing engineers in the future. The course requirements include foci in four core areas: the traditional manufacturing processes and design, materials processing, systems engineering and production/operations management. The new capstone project course (MFE 590) is included to integrate these four topics in a project based, team taught course experience.

The new capstone, 3-graduate credit course (MFE 590 Capstone Project in Manufacturing Engineering) is designed to meet the Capstone Project requirement for the MS in Manufacturing Engineering and will provide a practical experience for the students in the M.S. MFE Program to synthesize their learning and to apply technical and scientific knowledge with Systems thinking, complex problem solving and creativity to their projects. *(The Capstone Project requirement can be met by either successful completion of* MFE590 Capstone Project in Manufacturing Engineering *or with a three credit Independent Study or Directed Research project in Manufacturing Engineering)*

Resources Needed: The courses specified in the new degree requirements are currently being offered. No new resources are required.

Implementation: The degree requirements presented above will replace the current degree requirements effective May 1, 2018. The existing students in the program can choose to either continue by following the old curriculum; or switch to the new curriculum.

Manufacturing Engineering

Faculty

R. D. Sisson Jr., George F. Fuller Professor; Director, Manufacturing and Materials Engineering; Ph.D., Purdue University. Materials process modeling, manufacturing engineering, corrosion, and environmental effects on metals and ceramics.

D. Apelian, Howmet Professor of Engineering; Director, Metal Processing Institute; Sc.D., Massachusetts Institute of Technology. Solidification processing, spray casting, molten metal processing, aluminum foundry processing, plasma processing, and knowledge engineering in materials processing.

I. Bar-On, Professor; Ph.D., Hebrew University of Jerusalem. Mechanical behavior of materials, fracture and fatigue of metals, ceramics and composites, reliability and lie prediction, and electronic packaging.

C. A. Brown, Professor, Director Surface Metrology Laboratory; Ph.D., University of Vermont, 1983. Surface metrology, multi-scale geometric analyses, axiomatic design, sports engineering, and manufacturing process.

M. S. Fofana, Associate Professor, Ph.D., University of Waterloo, Waterloo, Canada, 1993; Nonlinear delay dynamical systems, stochastic bifurcations, regenerative chatter, numerically controlled CAD/CAM machining.

S. A. Johnson, Professor; Ph.D., Cornell University, 1989; Lean process design, enterprise engineering, process analysis and modeling, reverse logistics.

D. A. Lados, Milton Prince Higgins II Distinguished Associate Professor of Mechanical Engineering; Director, Integrative Materials Design Center (iMdc); Ph.D., Worcester Polytechnic Institute, 2004; Fatigue, fatigue crack growth, thermo-mechanical fatigue, creep, and fracture of metallic materials – life predictions, computational modeling and ICME, materials/process design and optimization for aerospace, automotive, marine, and military applications;

advanced material characterization; additive manufacturing, metal matrix nano–composites, friction stir welding, cold spray technology, powder metallurgy; residual stress; plasticity; fracture mechanics.

M. M. Makhlouf, Professor; Ph.D., Worcester Polytechnic Institute. Solidification of Metals, the application of heat, mass and momentum transfer to modeling and solving engineering materials problems, and processing of ceramic materials.

D. Strong, Professor of Management; Ph.D., Carnegie-Mellon University; Director of the Management Information Systems (MIS) Program; MIS and work flows, data integration and role changes; MIS quality issues, data and information quality.

J. M. Sullivan Jr., Professor of Mechanical Engineering; D.E., Dartmouth College, 1986. Development of graphics tools and mesh generation, numerical analysis of partial differential equations, medical image visualization and analysis software development.

B. Tulu, Associate Professor of Management, Ph.D. Claremont Graduate University. Medical informatics, information security, telemedicine, personal health records, systems analysis and design.

A. Zeng, Professor of Operations Management; Assistant Dean; Director of Operations & Industrial Engineering Program; Ph.D., Pennsylvania State University.

Faculty Research Interests

Current research areas include tolerance analysis, CAD/CAM, production systems analysis, machining, fixturing, delayed dynamical systems, nonlinear chatter, surface metrology, fractal analysis, surface functionality, metals processing and manufacturing management, axiomatic design, and abrasive processes, electronic medical records, lean in health care and health dynamics.

Programs of Study

The Manufacturing Engineering (MFE) Program offers two graduate degrees: the master of science and the doctor of philosophy. Full- and part-time study is available.

The graduate programs in manufacturing engineering provide opportunities for students to study current manufacturing techniques while allowing each student the flexibility to customize their educational program. Course material and research activities often draw from the traditional fields of computer science, controls engineering, electrical and computer engineering, environmental engineering, industrial engineering, materials science and engineering, mechanical engineering, and management. The program's intention is to build a solid and broad foundation in manufacturing theories and practices, and allow for further concentrated study in a selected specialty.

Admission Requirements

Candidates for admission must meet WPI's requirements and should have a bachelor's degree in science, engineering, or management, preferably in such fields as computer science/engineering, electrical/ control engineering, industrial engineering, environmental engineering, manufacturing engineering, materials science and engineering, mechanical engineering, or management. Students with other backgrounds will be considered based on their interest, formal education and experience in manufacturing.

Degree Requirements
For the M.S.

The Manufacturing Engineering (MFE) program is intended to be flexible in order to meet student needs. Many MFE graduate students work full time as engineers, others are graduate teaching and research assistants. Some of the courses are offered in the evenings.

The M.S. Degree in MFE requires 30 credit hours of graduate studies. The 30 credits consist of a minimum of 12 credit hours of coursework, plus 18 credit

hours of any combination of coursework, independent study, directed research or thesis that complies with the following constraints: if there is a thesis, it must be at least 6 and no more than 12 credits; there can be no more than 9 credits of directed research; and the total number of credits from the Management Department cannot exceed 14.

The minimum of 12 credit hours of coursework must include a minimum of two credits each in at least four of the eight core areas. The coursework should be selected in consultation with an advisor from the MFE faculty. All full-time students are required to participate in the non-credit seminar course MFE 500.

The eight core areas, and corresponding suggested courses that students can select from to fulfill the requirements in each of these areas, are listed below. Courses that appear in more than one core area can only be used to fulfill the requirements in one.

1. Manufacturing Systems

1.1. MFE 531 Computer Integrated Manufacturing
1.2. OIE 544 Supply Chain Analysis and Design
1.3. OIE 548 Productivity Management
1.4. OIE 555 Lean Process Design
1.5. MIS 573 System Design and Development
1.6. MIS 584 Business Intelligence

2. Manufacturing Processes

2.1. MFE 520 Design and analysis of Manufacturing Processes
2.2. MFE 511 Industrial Robotics

Or any graduate Manufacturing Engineering or Materials Science and Engineering course on a manufacturing process

3. Control Systems

3.1. MFE 510 Control and Monitoring of Manufacturing Processes
3.2. MFE 511 Industrial Robotics

Or any graduate course in the Dynamics and Controls section of Mechanical Engineering

4. Design

4.1. MFE 541 Design for Manufacturability
4.2. MFE 520 Design and Analysis of Manufacturing Processes
4.3. ME 545 Computer-aided Design and Geometric Modeling

5. Materials

Any graduate course in Materials Science and Engineering

6. Financial Processes

6.1. ACC 501 Financial Accounting
6.2. FIN 502 Finance
6.3. FIN 508 Economics of the Firm
6.4. FIN 509 Domestic and Global Economic Environment of Business
6.5. ACC 514 Business Analysis for Technological Managers (prerequisites: ACC 501, FIN 502, OIE 505, MKT 506 and FIN 508)

7. Statistics and Quality Assurance

7.1. OIE 505 Quantitative Methods
7.2. MKT 506 Principles of Marketing
7.3. OIE 558 Designing and Managing Six-Sigma Processes

Or any graduate Mathematical Sciences course on statistics

8. Health Systems Engineering

MIS 571. Database Applications Development
MIS 579 E-Business Applications
OIE 541 Operations Risk Management
SD 550 Foundation: Managing Complexity
SD 551 Modeling and Experimental Analysis of Complex Problems
CS 505 Social Implications of Computing
BME 560 Physiology for Engineers

Suggested courses from other cores:

MIS 573 System Design and Development can be taken as part of Manufacturing Systems

MIS 584 Business Intelligence can be taken as part of Manufacturing Systems

OIE 555 Lean Process Design can be taken as part of Manufacturing Systems

MFE 520 Design and Analysis of Manufacturing Processes can be taken as part of Design

OIE Quantitative Methods can be taken as part of Statistics and Quality

OIE Designing and Managing Six-Sigma Processes can be taken as part of Statistics and Quality

A course taken from the Financial Processes core

For the Ph.D.

The doctoral (Ph.D.) program in MFE is a research degree with no required courses. All candidates must pass a comprehensive exam. All candidates must complete at least one year in residence, have a dissertation proposal accepted, then complete the dissertation and defend it successfully.

The dissertation is based on original research. A broad range of research topics is possible, including investigation into the fundamental science on which manufacturing processes are based, material science, manufacturing engineering education, metrology, quality, machine tool dynamics, manufacturing processes, design methodology and production systems, and health systems research.

MFE Seminar

Seminar speakers include WPI faculty and students as well as manufacturing experts and scholars from around the world. Registration for, attendance at and participation in the seminar course, MFE 500, is required for full-time students. The seminar series provides a common forum for all students to discuss current issues in manufacturing engineering.

Research Facilities and Laboratories

The CAM Laboratory

The CAM Lab facilitates the use of digital technologies to model, analyze, and control the manufacturing processes and systems. Besides the computers available for students, several application software packages have been used for CAD, solid modeling, kinematic analysis, FEA, modeling and simulation of machining and other materials processing, as well as new additive manufacturing processes. The lab has been developing techniques and systems for process (machining and heat treatment) modeling and simulation, production planning, tolerance analysis, fixture design, and lean manufacturing.

Date: April 12, 2018
To: WPI Faculty
From: Committee on Graduate Studies and Research (Prof. K. Troy, Chair)
Re: Motion to add MIS 586 User Experience Research Methods

Motion: On behalf of the Foisie School of Business, the Committee on Graduate Studies and Research recommends and I move that a new course MIS 586 User Experience Research Methods, as described below, be added.

Proposed Course Description:
MIS 586 User Experience Research Methods (3 credits):
In today's increasingly connected and smart environments, understanding how people use and experience technologies is becoming crucial in designing successful technological products and services. This course covers various methodologies for conducting research in User Experience (UX) field. It covers both qualitative and quantitative methods for conducting UX research in academia and industry. Theoretical concepts and practical skills will be addressed within the scope of the class through hands-on projects and assignments.

Rationale:
This course will be needed for the new graduate program in Innovation with UX (IUX). MIS 586 (3 credits) will be a required course for the proposed graduate degree and certificate in IUX.

Resource Needs: This course will be taught by IT faculty in the Foisie School of Business

Implementation Time: AY 2018-2019

Date: April 12, 2018
To: WPI Faculty
From: Committee on Graduate Studies and Research (Prof. K. Troy, Chair)
Re: Motion to establish Graduate Certificate and M.S. programs in Innovation with UX

Motion: On behalf of the Foisie School of Business, the Committee on Graduate Studies and Research recommends and I move that both a Graduate Certificate and an M.S. program in Innovation with User Experience (IUX) be established, as described below.

Description of the Proposed Graduate Certificate and M.S. Programs in Innovation with User Experience (IUX):

1. Overview
The new programs that will be established are:
Master of Science in Innovation with UX (M.S. IUX)
Degree Requirements for M.S. IUX
36 credits of relevant work at the graduate level as described in the attached proposal.

Graduate Certificate in Innovation with UX
Degree Requirements for Graduate Certificate in IUX:
12 credits from specified courses as described in the enclosed proposal.

*Program Goals and Degree Objectives***:**
Students will study proven theories, industry best practices, and new technologies in creating business value through innovation with UX. Upon graduation, students will be prepared to:
- design innovative user experiences and evaluate their competitiveness in the market
- manage the UX design process for products and/or services
- identify opportunities for improving the user experience of existing products and services for existing markets
- identify opportunities for designing new experiences (products and services) for emerging markets
- identify, evaluate, and develop UX strategies for market competition
- evaluate the business value and ROI of UX design of a product and/or service
- work in teams, lead/manage UX projects, and communicate effectively in both oral presentation and writing

2. Admissions Requirements for the Graduate Degree in Innovation with UX
Applicants must follow the requirements set forth for all WPI graduate applicants: http://www.wpi.edu/admissions/graduate/appl-requirements.html. Specifically, a bachelor's degree in any discipline is required, along with an acceptable GRE or GMAT examination score. The admission decision is made based on the overall profile of an applicant. While there is no specific undergraduate major required, students that will most likely succeed in the program are those who have had academic training and/or work experience in a STEM field, operations research/management, IT, economics, among others.

The overview of the curricula of the proposed graduate offerings in Innovation with UX is shown in the table on next page. Detailed explanations of the curriculum for each offering are given in the subsequent sections.

Graduate Certificate in IUX 4 courses-12 credits	Master of Science in IUX 12 courses- 36 credits

4 required courses (12 credits)
1. UX Design (MIS 585)
2. UX Research Methods (MIS 586)
3. UX Applications (MIS 583)
One of the following three marketing courses
    • Marketing Management (MKT500)
    • Consumer Behavior (MKT 561)
    • Data Mining Business Applications (MKT 568)
	9 required core courses (27 credits)
	1. UX Design (MIS 585)
	2. UX Research Methods (MIS 586)
	3. UX Applications (MIS 583)
	4. Database (MIS 571)
	5. Business Intelligence (MIS 584)
	
	2 marketing core courses from the following list
	6. Marketing Management (MKT500)
	7. Consumer Behavior (MKT 561)
	8. Data Mining Business Applications (MKT 568)
	
	1 Business core course from the following list
	9. Group and interpersonal dynamics in complex organizations (OBC 500)
	10. Negotiations (OBC 533)
	
	1 Finance core course from the following list
	11. Financial Information and Management (Fin 500)
	12. Financial Intelligence for strategic decision making (ACC 503)
	
	3 electives from the following list (9 credits)
	 Design courses:
	13. UX Research Project I (BUS 598) (Advisor approval is required)
	14. UX Research Project II (BUS 598) (Advisor approval is required)
	15. System Design and Development (MIS 573)
	16. Game design studio (IMGD 5000)
	17. Design of interactive experiences (IMGD 5300)
	
	 Business courses:
	18. Any of the above marketing, business or finance core courses not taken for the core requirement
	19. Entrepreneurship and innovation (ETR 500)
	20. Technology commercialization: theory, strategy and practice (ETR 593)
	21. Modeling and optimizing processes (OIE 552)
	22. Health system model (OIE 556)
	23. Analyzing and designing operations to create value (OIE 500)
	24. Digital marketing (MKT 565)
	25. Marketing Research (MKT 562)
	26. Social media marketing (MKT 598)
	27. Internship (no more than 3 credits)
	
	Technical courses:
	28. Introduction to programming concepts, data structures and algorithms (CS 5007)
	29. Applied statistics for engineers & scientists (MA 511)
	30. Introduction to data science (DS 501)
	31. Statistical methods for data science (DS 502)
	32. Mobile and ubiquitous computing (CS 528)
	33. Human Computer Interaction (CS 546)
	34. Data visualization (CS 573)

3. Requirements for Graduate Degrees in IUX

The Master of Science in Innovation with UX (MSIUX) is designed to provide a comprehensive yet flexible curriculum to students who are pursuing a Master's degree.

Students accepted into the program will be assigned an academic advisor. In consultation with the academic advisor, a student must prepare a <u>Plan of Study</u> outlining the selections that the student will make to satisfy the graduate degree requirements from among the options offered. This Plan of Study must then be approved by the IUX Program Director and will be used to track student progress.

3.1 Degree Requirements for Master of Science in IUX (36-credit)

This degree program is grounded in proven theories, best business practices, and leading edge UX research innovations, which enables students to develop innovation with UX strategy and design processes, manage the process, and evaluate process performance and business value. The program is designed to maximize students' ability to tackle real-world challenging problems, and to enrich their leadership, teamwork, interpersonal, and business skills. The IUX Program Director will apply for STEM designation for this degree once it is approved. The graduates from this program will be prepared to design and lead the future's most effective UX industry research and development programs. The curriculum of this 36-credit degree consists of the following three components:

3.1.1 **Required Core Courses (9 courses; 27 credits)**
   (1) UX Design (MIS 585)
   (2) UX Research Methods (MIS 586)
   (3) UX Applications (MIS 583)
   (4) Database (MIS 571)
   (5) Business Intelligence (MIS 584)

   2 marketing core courses from the following list
   (6) Marketing Management (MKT500)
   (7) Consumer Behavior (MKT 561)
   (8) Data Mining Business Applications (MKT 568)

   1 business core course from the following list
   (9) Group and interpersonal dynamics in complex organizations (OBC 500)
   (10) Negotiations (OBC 533)
   1 finance core course from the following list
   (11) Financial Information and Management (Fin 500)
   (12) Financial Intelligence for strategic decision making (ACC 503)

Note that business strategy is an increasingly important component for developing UX efforts at strategic levels, and hence, students in this program are expected to acquire or strengthen their financial and organizational literacy and competency.

3.1.2 **Electives (3 courses; 9 credits)** from the list below (There is no requirement for distributing courses across areas; any 3 courses may be taken):

Design Courses:

      (13) System Design and Development (MIS 573)
      (14) UX Research Project I (BUS 598) (Advisor approval is required)
      (15) UX Research Project II (BUS 598) (Advisor approval is required)
      (16) Game design Studio (IMGD 5000)
      (17) Design of interactive experiences (IMGD 5300)

Business Courses:

      (18) Any of the above marketing, business, or finance core courses not taken for the core requirement
      (19) Entrepreneurship and innovation (ETR 500)
      (20) Technology commercialization: theory, strategy and practice (ETR 593)
      (21) Modeling and optimizing processes (OIE 552)
      (22) Health system model (OIE 556)
      (23) Digital marketing (MKT 565)
      (24) Marketing research (MKT 562)
      (25) Social media marketing (MKT 598)
      (26) Internship (no more than 3 credits)

Technical Courses:

      (27) Introduction to programming concepts, data structures and algorithms (CS 5007)
      (28) Applied statistics for engineers & scientists (MA 511)
      (29) Introduction to data science (DS 501)
      (30) Statistical methods for data science (DS 502)
      (31) Mobile and ubiquitous computing (CS 403X)
      (32) Human Computer Interaction (CS 546)
      (33) Data visualization (CS 573)

Courses 12 and 13, UX Research Project I and II, are optional and available for those students that plan to pursue a doctorate degree. If a student chooses to pursue this option, he/she must conduct the project individually. This research project, which requires approval from the Program Director and Assistant Program Director, is expected to provide research experience in studying a leading edge UX problem or challenge. If approved, an advisor will be assigned to the student. The student and his/her advisor will work together to identify a topic and set the project scope and deliverables. To earn credit, students must satisfactorily complete the expected deliverables.

3.2 Requirements for Graduate Certificate in IUX

A graduate certificate program in IUX is available and requires **<u>four</u>** courses (12 credits) as explained below:

3.2.1   Required Courses (4 courses; 12 credits)
  (1) UX Design (MIS 585)
  (2) UX Research Methods (MIS 586)
  (3) UX Applications (MIS 583)

One of the following three marketing courses
- • Marketing Management (MKT500)
- • Consumer Behavior (MKT 561)
- • Data Mining Business Applications (MKT 568)

4. Program Delivery

Students can pursue their certificate/degree option in IUX either on a part-time or full-time basis. Currently, all core UX courses are only offered on campus, typically in the evening. Delivery mode will be evaluated periodically to consider other options as market needs evolve.

5. Program Management

IUX Program Committee: The Committee consists of the following three members:
- • Professor Soussan Djamasbi, Director of User Experience and Decision Making (UXDM) Lab (IUX Program Director)
- • Professor Diane Strong (Assistant IUX Program Director)
- • Mr. Norm Wilkinson

Program Assessment and Accreditation: To ensure the long-term success of the program a regular and continuous assessment will be conducted of applicants, students, faculty and employers. This will include an end-of-year program review by the IUX Program Committee. The assessment will include, but not limited to: curriculum review, job placement, student feedback and employers' feedback. Additionally, since this new program is granted through the AACSB-accredited Foisie Business School, regular assessments to meet the AACSB Assurance of Learning requirements will be conducted.

Advisory Board and Industrial Ties: The industry advisory board of the User Experience and Decision Making (UXDM) Laboratory and Consortium will provide input to ensure the marketability of the program over time.

Rationale:
The Foisie Business School grounded in a technology-focused university has world-class expertise and educational resources in these areas, and thus is suitably poised to offer a graduate-level education to prepare interested parties for their career choices and leaderships in the field of Innovation with User Experience (IUX). The addition of this new degree program will not only provide needed response to market needs, but also solidify the Foisie School's enrollment, reputation, and impacts.

Our current MSIT offers a general IT curriculum. This new proposed degree program and certificate program is a specialized IT program designed to address the rapidly-growing market needs and focused student needs.

Rapid advances in science and engineering allow companies to develop increasingly sophisticated information technology (IT) products. These products are used for a wide range purposes in our daily lives; from hedonic purposes such as entertainment to utilitarian purposes such as completing job-related tasks. As the IT industry matures, many of these products become commodities. As a reaction to this trend, competition in the overall IT industry is increasingly shifting toward providing outstanding user experiences. Consequently, innovation with user

experience is becoming increasingly essential in developing IT products and services that can maintain competitive advantage in the marketplace. This market demand highlights the need for expanding the pool of talented professionals with strong backgrounds in both user experience design and business skills. The Foisie Business School has world-class expertise and educational resources in these areas, and thus is suitably poised to offer graduate-level education to prepare students as user experience professionals in industry and set them on a path to take on leaderships positions such as chief experience officers (CXO).

Market Analysis: User experience plays an increasingly important role in creating business value and as such there is a growing demand for user experience (UX) professionals in industry who can envision innovative user experiences[10].

Designing innovative user experiences is challenging because such experiences must go well beyond merely satisfying users' expectations; they must provide a meaningful symbiotic relationship between humans and technology so that users can accomplish their goals effectively and delightfully. Providing pleasant experiences that surpass exceptions, however, by definition raises what user expect from a technology, creating a never-ending cycle of growing expectations. What is considered novel to a user today becomes an expected norm in the next generation of products[11]. Thus, to stay competitive, organizations must maintain a continuous cycle of innovation with UX. The constant demand for designing novel experiences creates the growing market need for talented user experience practitioners[1]. Further evidence of this market need is the growth of a new leadership position in tech companies, namely the chief experience officer (CXO), who is responsible for overseeing the overall process of and strategy behind an organization's innovation through user experience design[12].

This proposed graduate degree program prepares students for a variety of upper-level UX positions in industry, especially in high-tech industries, such as:
- User experience manager
- User experience specialist
- User experience researcher
- User experience designer and analyst

Competitive Programs: The number of graduate-level programs in UX available in New England is sparse; only the following universities offer some form of training in UX (certificate, coursework, and degree):

- Bentley University:
  - Masters in Human Factors in Information Design, http://admissions.bentley.edu/graduate/masters-in-human-factors
  - User Experience Certificate program, https://www.bentley.edu/centers/user-

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[10] https://www.cbsnews.com/media/the-best-11-jobs-in-america-for-2017/4/
https://www.mockplus.com/blog/post/the-job-market-prospect-for-ux-designers
http://www.economicmodeling.com/2016/12/14/5-career-families-top-job-titles-keep-eye-2017/

[11] Wilson, E. V., Djamasbi, S. "Human-Computer Interaction in Health and Wellness: Research and Publication Opportunities," AIS Transactions on Human-Computer Interaction, September 2015, 7(3), pp. 97 – 165

[12] http://thenextweb.com/dd/2015/01/25/new-kid-digital-block-chief-experience-officer-actually/

experience-center/certificate-program/certificate-program

- Brandeis
  - Masters in User-Centered Design, http://www.brandeis.edu/gps/future-students/learn-about-our-programs/user-centered-design.html
- Northeastern University
  - Graduate Certificate in Interactive Design, https://www.northeastern.edu/graduate/program/graduate-certificate-in-interactive-design-boston-228/
- MIT
  - Master's in Media Arts and Sciences (MAS), http://catalog.mit.edu/schools/architecture-planning/media-arts-sciences/

- Quinnipiac University
  - Master's in Interactive Media, https://quonline.quinnipiac.edu/online-programs/online-graduate-programs/ms-in-interactive-media/

An examination of the universities in New England that offer educational opportunities in UX shows that the availability is limited, but also that some universities have noticed the market demand. Please refer to the complete list in the Appendix 1.

Resource Needs: One new course (MIS 586) is included in the IUX core curriculum. A second core course, MIS 585 (UX Design), was approved in the fall 2017 and will be offered in AY2018-2019. All other courses are offered regularly at WPI.

Based on market analysis, we expect to attract 30 to 40 students per year to the program during the first couple of years of launch. During this initial development stage, Professors Djamasbi and Strong will utilize some parts of their service time to support the program. The Foisie Business School will closely monitor the future service requirements of the program and adjust faculty commitment as needed.

Implementation Timeline:
- 2018 Spring: Program approval by WPI faculty
- AY 2018-19: Promoting the new degrees and accepting students into the program
- 2019 Fall: First group starting the program (Fall and Spring admission)

Appendix 1: UX Education Opportunities in New England

	State	University	Graduate Programs in UX or related fields
1	Connecticut	Quinnipiac University	Master's in Interactive Media Degree
2	Massachusetts	Massachusetts Institute of Technology	Master's in Media Arts and Sciences (MAS)
3	Massachusetts	Northeastern University	Graduate Certificate in Interactive Design
4	Massachusetts	Bentley University	Human Factors in Information Design
5	Massachusetts	Brandeis	MS in User-Centered Design