

## **1.976: Graduate Student Professional Development Seminar**

*Fall 2022, Tu 3-5pm, Room 48-316*

Website: <https://canvas.mit.edu/courses/15359>

### **Facilitators:**

Colette Heald, Professor CEE ([heald@mit.edu](mailto:heald@mit.edu)), Office 48-335

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### **MIT Partners**

Jessie Stickgold-Sarah, Lecturer, Writing, Rhetoric, and Professional Communication (WRAP)

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### **Subject Description:**

Welcome to Professional Development for Graduate Students, a course born out of feedback from graduate students who called for more opportunities to develop professional skills and competencies during their time at MIT. This course is designed for second-year MIT graduate students in Course 1. The aim is to prepare you for success on your General Exam, in your graduate career, and in your professional pursuits after completion of the PhD. In each Professional Development session, we (the facilitators) will partner with existing MIT resources to address one or more aspects of professional development, and you will have the opportunity to execute practice versions of written and oral elements of your general exam in preparation for the real thing. Concurrently, you will build a community amongst your cohort of graduate student peers in CEE, who will be valuable social and professional resources at MIT and beyond.

### **Subject Format:**

This class is a 2-0-4 format, meaning that each week will consist of 2 hours of in-class meeting time and approximately 4 hours of dedicated outside-class time that includes assignments and projects. Class sessions will take place on Tuesdays from 3-5pm EST.

### **Subject Requirements:**

This course is graded P/D/F. In order to pass the course, you must:

- Attend the entirety of 12 regular sessions, Tuesday 3-5pm (Please notify the facilitators, ideally in advance, of any medical or excused absences).
- Be adequately prepared, and willing to actively participate in class activities
- Complete and submit all required assignments and projects (to be submitted on canvas by 9am on due date)

### **Expected Conduct:**

As in any professional setting, you are expected to welcome and respect the diversity of thoughts, perspectives, and personal identities presented within the group. In addition, you should work with

integrity. Specifically, your assigned work should be the product of your own ideas and effort, and accurately cite any ideas contributed from other sources. Finally, this class includes many opportunities to share your thoughts and your work with your peers, which can be a vulnerable experience. We ask that you work to foster a safe environment for all, so that through shared vulnerability you can gain important insights into yourself and a greater connection with your peers.

**Class Schedule:**

| SESSION                          | DATE |    | TOPIC  | DUE DATES                                       |
|----------------------------------|------|----|--|---|
| 1                                | Sep  | 13 | Part 1: Intro to 1.976 (facilitators)<br>Part 2: Reading & Writing Research Papers (WRAP)  |   |
| 2                                |      | 20 | Part 1: Research Manuscript Discussion (facilitators)<br>Part 2: Intro to Research Summaries (WRAP)  | Assignment 1                                    |
| 3                                |      | 27 | Part 1: Previous Research Summary Analysis (facilitators)<br>Part 2: Research Summary Consensus Rubric (WRAP)  | Assignment 2                                    |
| 4                                | Oct  | 4  | Part 1: How to Craft an Elevator Pitch (CommLab)<br>Part 2: Research Speed Dating (facilitators)   | Assignment 3<br>Project 1 (due Oct 7)           |
| 5<br>(special<br>Thu<br>session) |      | 13 | Part 1: Research Summary Peer Review (facilitators)<br>Part 2: Research Presentations (WRAP)   |   |
| 6                                |      | 18 | Alumni Career Panel  | Assignment 4 (due<br>Oct 19)                    |
| 7                                |      | 25 | Mock General Exam Interviews (facilitators)  | Assignment 5                                    |
| 8                                | Nov  | 1  | Part 1: Mentoring (CAPD)<br>Part 2: Journal publications & ethics (facilitators)   | Assignment 6.1<br>Assignment 6.2                |
| 9                                |      | 8  | Part 1: Individual Development Planning (CAPD)<br>Part 2: Time Management, Wellness, Work-Life Balance<br>Panel (facilitators, Victoria Barber, Rachel Gregor, Yagmur<br>Yegin, Nikolai Radzinski) | Assignment 7.2 (due<br>Nov 7)<br>Assignment 7.1 |
| 10                               |      | 15 | Part 1: Bias Navigation (Desiree Plata)<br>Part 2: Socially Responsible Research, Broader Impacts<br>(facilitators)<br>Part 3: Teaching Resources (facilitators)                                   | Assignment 8                                    |
|                                  |      | 22 | No class (Thanksgiving week)   |   |
| 11                               |      | 29 | Research Presentations: Day 1 (WRAP & facilitators)  | Project 3                                       |
| 12                               | Dec  | 6  | Research Presentations: Day 2 (WRAP & facilitators)<br>Course wrap-up (facilitators)   | Project 2                                       |

**Intended Learning Outcomes (ILOs):**

Please note that these ILOs address a subset of the MIT institute-wide Graduate Student Professional Development Competencies, the full extent of which are included below. By the end of this professional development course, you (the student) will be better equipped to:

- Interact, work with, and learn from others with diverse backgrounds and identities –particularly those in your MIT cohort
- Express ideas coherently through diverse media

- Write succinct, impactful research summaries
- Craft and deliver short, audience-appropriate oral research summaries
- Leverage digital presentation tools to enhance research presentations
- Identify and articulate your strengths, knowledge, values, interests, and related experiences
- Develop and implement strategic plans to achieve goals at various career stages
- Create an appropriate balance between work and life at current and future career stages
- Navigate MIT resources for additional and continued professional development

Competencies addressed explicitly addressed in 1.976 are highlighted in green. Competencies tangentially addressed in the course are highlighted in yellow.

| <b>MIT Student Professional Development Competencies</b>  |
|---|
| <p>Career Advancement</p> <p><i>Identify goals and explore career options while acting in accordance with professional expectations.</i></p> <ul style="list-style-type: none"> <li>● Identify and articulate skills, strengths, knowledge, values, interests, and experiences to develop career path</li> <li>● Develop and expand one's disciplinary expertise</li> <li>● Understand organizational norms and expectations</li> <li>● Self-advocate for career advancement opportunities</li> <li>● Build supportive relationships through networking</li> </ul>                    |
| <p>Communication</p> <p><i>Receive and translate gained knowledge to articulate information clearly</i></p> <ul style="list-style-type: none"> <li>● Listen actively to understand and respond</li> <li>● Express ideas coherently through diverse media</li> <li>● Present information effectively to a wide variety of audiences</li> </ul>   |
| <p>Interpersonal Skills</p> <p><i>Build collaborative relationships and work effectively with people from diverse backgrounds</i></p> <ul style="list-style-type: none"> <li>● Interact, work with, and learn from others with diverse backgrounds and identities</li> <li>● Make positive contributions to the work of a team in various roles</li> <li>● Understand and effectively navigate cross-cultural norms</li> <li>● Negotiate, manage conflict, and problem solve</li> </ul>   |
| <p>Leadership and Mentoring</p> <p><i>Lead others in a pursuit of a common vision, and develop advising relationships</i></p> <ul style="list-style-type: none"> <li>● Develop strategic plans to establish and achieve goals</li> <li>● Identify and understand group dynamics of a diverse talent pool to allow for innovative solutions</li> <li>● Develop, motivate, and gain buy-in from others</li> <li>● Create relationships with others who have more experience or knowledge</li> <li>● Develop relationships with others to share your knowledge and experience</li> </ul> |
| <p>Personal Development</p> <p><i>Develop self-awareness and behaviors for personal growth and fulfillment</i></p> <ul style="list-style-type: none"> <li>● Understand the roles that effort, learning, and failure play in ultimate achievement of goals</li> <li>● Create an appropriate balance between work and life</li> <li>● Recognize emotions of self and others and use that information to guide thinking and behavior</li> <li>● Demonstrate personal accountability and leverage constructive criticism</li> <li>● Discover and articulate personal values</li> </ul>    |
| <p>Social Responsibility</p>  |

*Work with integrity and understand the broader social implications of one's decisions and actions*

- Use ethical reasoning and act accordingly
- Recognize social and environmental impacts of actions
- Consider the economic and governmental context of actions

Teaching

*Implement methodologies to educate, evaluate, and provide actionable feedback*

- Use evidence-based teaching practices
- Evaluate and assess student learning and performance

**COVID-RELATED:**

If you have tested positive for Covid-19 and must isolate, then please contact Prof. Heald so we can make sure you have access to course materials and we can discuss how we address the missed work. You also can always contact GradSupport for additional assistance. If any instructor becomes ill and needs to isolate, changes may be made to the lecture schedule. Any changes will be communicated via canvas and email.

Ventilation and filtering are highly effective at mitigating the spread of Covid-19. HEPA filters will be running in the classroom at all times to improve air filtration. Colette, Kiley, and Matthew will be wearing masks at all times while teaching; they request that you consider also wearing a mask to protect yourself and your classmates. However, masking is optional at MIT and will not be enforced unless campus policies change.

## **1.976: Professional Develop for Graduate Students**

### *Assignments & Projects*

The active format of the class sessions requires that you prepare for these meetings outside of class. Each week, there will be assignments. These assignments are specifically designed to bridge sessions, practicing skills covered in one session and/or preparing for an upcoming session. Over the semester, there will also be larger projects. Projects are designed to reinforce concepts covered in the sessions, with specific focus on preparation for the general exam. You must complete and submit all assignments and projects in order to pass this course.

All assignments should be submitted via Canvas by 9am on the due date unless otherwise indicated.

#### **ASSIGNMENTS:**

##### **Assignment 1 – Issued Sep 13, Due Sep 20**

Select a manuscript that you have already read that is relevant to your area of study. Write a two-paragraph summary of the paper that incorporates answers to the following questions. Submit the written answer on Canvas.

- What type of question was this manuscript addressing? (Theoretical? Methodological? Application? Basic science research question?)
- How did this paper advance my field?
- What part of my research does this paper inform?
- How will I incorporate this knowledge into my research plans? Into my research writings?
- What did the authors do well to present their ideas, and what was unsatisfying, confusing, etc?
- In structuring my research or writing, what would I want to do similarly to this manuscript? What would I want to do differently?
- Did the figures improve your understanding of the results? Were there aspects of the visual presentation that could have been improved?

##### **Assignment 2 – Issued Sep 20, Due Sep 27**

Read the 2 research statements (from previous CEE students) assigned to you. Write 1-2 paragraphs or a set of bullet points, describing parts of the summary that were well executed, parts that were executed poorly, and anything that should have been included that is missing. Relate your commentary to specific moves discussed in class. After your comments, list at least 3 things that must be included in a successful research summary. Submit your written answer on Canvas.

##### **Assignment 3 – Issued Sep 27, Due Oct 4**

Read about the UpGoer 5 challenge (<https://blogs.scientificamerican.com/guest-blog/science-in-ten-hundred-words-the-up-goer-five-challenge/> and <https://xkcd.com/1133/> ). Then, using this text editor (<https://splasho.com/upgoer5/>) as a guide to make sure you follow the rules, describe your own research in 6-8 sentences of UpGoerFive-compliant language. Upload the result to Canvas, and have it ready to share at the next class session.

##### **Assignment 4 – Issued Oct 13, Due Oct 18**

Think of a few questions that you would like to see discussed in next week's Alumni Panel. These can be general (for everyone on the panel) or specific to one or more parties on the panel. Input these into the shared Google Doc on this topic. Indicate your interest in questions that others have written by putting a

single asterisk (\*) by the three questions you are most interested in discussing. We will address as many questions as possible, but will prioritize those with most stars! Note: these do NOT need to be uploaded to Canvas; input in Google Doc only.

#### **Assignment 5 – Issued Oct 18, Due Oct 25**

Prepare for your mock student interviews by crafting an oral research summary (~3 mins or less) that succinctly describes the research you have done and plan to pursue during your graduate studies and how that relates to your career plans. Note that in your actual CEE Student Interview (outlined in the CEE Doctoral Program Guide, <https://cee.mit.edu/resources/>), you will also be required to explain how your proposed coursework supports your research and career plans. However, the coursework element should be omitted from the practice interview for this Professional Development course. Upload the written 'script' or interview notes for your student interview to Canvas, and have them ready to use at the next class session. Be mindful of length!

#### **Assignment 6.1 – Issued Oct 25, Due Nov 1**

Select a journal in your field, navigate the website and find the information for authors and/or the submission guidelines. Many journals also provide ethical guidelines for authors, usually listed as part of the submission guidelines or in the journal policy. Read through the information. For example, you can find the guidelines for manuscript preparation for *Environmental Science & Technology* here <https://pubs.acs.org/page/esthag/submission/authors.html>, and the journal ethics for American Chemical Society here <https://pubs.acs.org/page/policy/ethics/index.html> Write a 1-2 paragraph reflection on the reading, discussing the requirements for article submission and particularly those that you had not previously considered or which may be challenging to interpret. Submit your written answer to Canvas.

#### **Assignment 6.2 – Issued Oct 25, Due Nov 1**

Consider the mentor-mentee relationships. Brainstorm what 5 essential skills you think a mentor should develop. Submit the written answer on Canvas.

#### **Assignment 7.1 – Issued Nov 1, Due Nov 8**

Generate an account at <http://myidp.sciencecareers.org/> and an account at [imaginephd.com](http://imaginephd.com). Complete the skills, interests, and values assessments on each site, and peruse the results. Write 1-2 paragraphs reflecting on this process of self-assessment, and discussing your results (Were they expected? Surprising? Did they give you something new to consider? What features of each IDP did you find helpful?). Submit the written answer on Canvas.

#### **Assignment 7.2 – Issued Nov 1, Due Nov 7**

Think of a few questions that you would like to see discussed in next week's sessions about Time Management & Work Life Balance. Input these into the shared Google Doc (link on canvas) on this topic. (These should be kept anonymous – no name or identifying information needed.) Indicate your interest in questions that others have written by putting a single asterisk (\*) by the three questions you are most interested in discussing. We will address as many questions as possible, but will prioritize those with most stars! Note: these do NOT need to be uploaded to Canvas; input in Google Doc only.

#### **Assignment 8 – Issued Nov 8, Due Nov 15**

Ask your research advisor to share any broader impacts statement(s) that they have submitted with grants over the past few years. Considering either your current research project or your long-term research goals, draft a one paragraph statement that explains the broader impacts of your research. You may refer to these NSF Broader Impacts Review Criterion (<https://www.nsf.gov/pubs/2007/nsf07046/nsf07046.jsp> and <https://www.nsf.gov/od/oia/special/broaderimpacts/> ) for guidance. Submit the written answer on Canvas.

## **PROJECTS:**

### **Project 1 – Issued Sep 20, Due Oct 7**

Draft one-page research summary according to this prompt provided in the linked CEE Doctoral Program Guide (<https://cee.mit.edu/resources/>) under the section “Student Interview [Fall Term AY2]”, item #1: A one-page summary of your research experience at MIT and your research vision for your PhD written for a general audience. This should include discussion of the key motivation(s) for your research, the methods you are applying, and your long-term goals.

Upload your research summary to Canvas by the indicated due date.

### **Project 2 – Issued Oct 4, Due Dec 6**

Sign up for Alumni Advisor Hub, and send messages to at least 2 alumni with whom you are interested in communicating. Set up a virtual meeting with at least one alumnae/alumnus. After the meeting, write a 1-2 paragraph reflection on the resulting conversation. (Was it helpful? Did you gain any insights? Do you want to communicate with this person further, or have you gotten as much out of it as you need?)

Upload your reflections to Canvas by the indicated due date.

### **Project 3 – Issued Oct 13, Due Nov 29**

Prepare for your Research Presentation by generating 3 slides and a 5-minute presentation to accompany the slides. Prior to presentation day, meet with the CEE CommLab to get a consult on your presentation & incorporate any helpful feedback. \*Note, you should secure an appointment with the CommLab as soon as possible to ensure availability before your presentations in November. Upload your slides to Canvas by the indicated due date.

<https://mitcommlab.mit.edu/cee/make-an-appointment/>