DCDS 499: Introduction Graduate Research in Computational and Data Sciences

Instructor: Amanda Kube

Fall 2020

E-mail: `amanda.kube@wustl.edu`   Class Room: None
Office Hours: By Appointment   Class Meetings: Tues./Thurs. 1:00-2:20pm

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Course Description

This course presents topics and ideas that do not need detailed specific computational or substantive backgrounds. The topics covered include ethics, the nature of research, robustness and reproducibility of research, and presentations on the DCDS core domains (computation, political science, psychology and brain sciences, public health and social work). The course exposes students to research in human and social data analytics across the university. Prerequisites: Current standing as a doctoral student in DCDS or permission of the instructor.

Course Structure

This course serves two principal functions. Its first and most important function is to help new graduate students learn about the various research activities happening across DCDS and make an informed decision about choosing a faculty research advisor. Students will meet many faculty across multiple schools and will complete two rotation experiences to clarify their interests and find a good advisor match. The course will provide various forms of support to facilitate and encourage good student-advisor matches. To this end, many class meetings will consist of research talks by faculty. The breadth and depth of the talks is determined by the individual faculty member, but should provide you with a flavor of research in those groups.

The course's other function is to orient new PhD students to a life in research. We will discuss general research skills, ethics, and professional development as well as resources available to students. Research skills discussions will focus on many different aspects of the research process, including how to read and evaluate papers, how to communicate your ideas and results, and how to make the best use of available resources.

This course is not intended to be difficult. If you put effort into all required activities and thoughtfully participate in all class meetings, you will probably get an 'A'. However, the real

point of this course is to ensure that you successfully enter into a long-term research advising relationship. Please note that your initial academic advisor is not your research advisor, and that your rotation advisors are under no obligation to accept you as a long-term advisee. Entry into a long-term research advising relationship requires the mutual consent of both student and faculty member and generally happens only after one-on-one meetings and negotiation. By the end of the summer following your first year, you will put together an advisory committee (of at least 2 DCDS faculty, preferably from different tracks) and identify the specific track in which you plan to do research and pursue your Ph.D. *Setting you up for success in this is the main focus of this course.*

Overview of Rotations

The most important part of the course is the opportunity to plan your research rotations with faculty members. A rotation is a short, directed research project that you will carry out under the direction of a faculty advisor. The primary purpose of a rotation is for you and your rotation advisor to assess your interest in the advisor's research area and whether the two of you might be willing to enter into a long-term advising relationship.

You are required to participate in two three-month rotations. The first of these will begin in November. As a part of this course, you will seek out at least two faculty rotation advisors. I will assist you in finding out who is offering rotation projects, and individual faculty may also advertise their projects to you directly. By the start of the rotation period, you must identify your rotation advisor and complete a written rotation plan, describing the project to be done and setting monthly milestones to help you and the rotation advisor assess your progress. The first of these plans will be due before the start of your first rotation. The second will be due before the conclusion of the course.

Course Policies

Course Materials and Announcements

We will use Piazza for all questions and discussions related to the class. Please post questions on Piazza rather than in an email. This serves multiple purposes. First, others may have the same question. Posting to Piazza allows me to clarify the issue for everyone at the same time. Second, I am much more likely to respond in a timely manner if you post on Piazza! Piazza also allows anonymous posting and private posts to instructors. The link to the Piazza discussion for our course can be found here: piazza.com/wustl/fall2020/dcds499

All announcements related to the class will be made either in class or on Piazza. We will assume that any announcement made on the website or on Piazza is known to everyone in class within one business day of it being posted. It is important to check the website regularly! You are responsible for all announcements made in lecture or on the website.

Grading Policy

Your course grade will be calculated as follows:

- Attendance and Participation 10%

- Rotation Plan 1 30%

- Rotation Plan 2 30%

- Other Assignments 30%

Topics to be Covered

Topics we will discuss throughout the semester will include but are not limited to:

- What is a PhD in DCDS?

- Rotations

- Marketing Yourself

- Research Ethics

- Publishing and Presenting

- Critical Reading and Reviewing

- Writing a Research Proposal

- Literature Review and Citation Management

Course Calendar

A more detailed calendar will be posted to Piazza and updated as needed. This calendar is subject to change.

Date	Topic	Due
September 15	Introduction to Graduate Study	
September 17	Success in Research Part 1	
September 22	Faculty Presentations - Patrick Fowler and Eugene Vorobeychik	
September 24	Guest Speaker - Librarian Lauren Todd	
September 29	Faculty Presentations - Netanel Raviv and Chien-Ju Ho	
October 1	Faculty Presentations - Ryan Bogdan and Betsy Sinclair	Homework 1
October 6	DCDS Student Panel Discussion	
October 8	Faculty Presentations - Brendan Juba and S. Joshua Swamidass	Homework 2
October 13	Faculty Presentations - Jeff Zacks and Calvin Lai	
October 15	Faculty Presentations - Deanna Barch and Jacob Montgomery	
October 20	Faculty Presentations - Matt Kreuter, Rachel Garg, and Balaji Golla	
October 22	Faculty Presentations - Randi Foraker	
October 27	Success in Research Part 2	
October 29	Faculty Presentations - Christopher Lucas	Rotation Plan 1
November 3	TBA	
November 5	TBA	
November 10	Faculty Presentations - Philip Payne	Homework 3
November 12	TBA	
November 17	TBA	
November 19	Faculty Presentations - Fangqiong Ling	
November 24	TBA	
November 26	**Thanksgiving - No Class**	
December 1	Faculty Presentations - Todd Braver and Alvitta Ottley	
December 3	TBA	
December 8	TBA	
December 10	TBA	
December 15	TBA	
December 17	TBA	Rotation Plan 2

Accommodations Due to COVID-19

Due to the pandemic and to the nature of the course, all class meetings and faculty presentations will be held over Zoom. Attendance and participation are still expected and to this end, I ask that you keep your video on so I can assess attendance. Microphones can be muted during presentations, but not during class discussions. We will be allowing others from around the university to "sit in" on faculty presentations as well so expect others on the Zoom calls. We will continue to adjust any COVID-19 policies as we get further information from the administration or as the situation progresses over time, so please be flexible as we are all navigating this together.

Other Accommodations

Accommodations based upon sexual assault: The University is committed to offering reasonable academic accommodations (for example, no contact order, course changes) to students who are victims of relationship or sexual violence, regardless of whether they seek criminal or disciplinary

action. If you need to request such accommodations, please contact the Relationship and Sexual Violence Prevention Center (rsvpcenter@wustl.edu or 314-935-3445) to schedule an appointment with an RSVP confidential, licensed counselor. Information shared with counselors is confidential. However, requests for accommodations will be coordinated with the appropriate University administrators and faculty. See http://rsvpcenter.wustl.edu. If a student comes to us to discuss or disclose an instance of sexual assault, sex discrimination, sexual harassment, dating violence, domestic violence or stalking, or if we otherwise observe or become aware of such an allegation, we will keep the information as private as we can, but as faculty members of Washington University, we are required to immediately report it to a Department Chair or Dean or directly to Ms. Jessica Kennedy, the University's Title IX Coordinator. If you would like to speak with the Title IX Coordinator directly, Ms. Kennedy can be reached at (314) 935-3118, jwkennedy@wustl.edu, or by visiting the Title IX office in Umrath Hall. Additionally, you can report incidents or complaints to the Office of Student Conduct and Community Standards, or by contacting WUPD at (314) 935-5555 or your local law enforcement agency. See https://titleix.wustl.edu/.

Bias Reporting: The University has a process through which students, faculty, staff and community members who have experienced or witnessed incidents of bias, prejudice or discrimination against a student can report their experiences to the University's Bias Report and Support System (BRSS) team. See: http://brss.wustl.edu Mental Health Mental Health Services' professional staff members work with students to resolve personal and interpersonal difficulties, many of which can affect the academic experience. These include conflicts with or worry about friends or family, concerns about eating or drinking patterns, and feelings of anxiety and depression. See: http://shs.wustl.edu/MentalHealth

Preferred Name and Gender Inclusive Pronouns: In order to affirm each person's gender identity and lived experiences, it is important that we check in with others about pronouns. This simple effort can make a profound difference in a person's experience of safety, respect, and support. See: https://students.wustl.edu/gender-pronouns-information/ and https://registrar.wustl.edu/student-records/ssn-name-changes/preferred-name/

Military Service Leave: Washington University recognizes that students serving in the US Armed Forces and their family members may encounter situations where military service forces them to withdraw from a course of study, sometimes with little notice. Students may contact the Office of Military and Veteran Services at (314) 935-2609 or veterans@wustl.edu and their academic dean for guidance and assistance. See: https://veterans.wustl.edu/policies/ policy-for-military-students/.

Center for Diversity and Inclusion (CDI): The Center of Diversity and Inclusion (CDI) supports and advocates for undergraduate, graduate, and professional school students from underrepresented and/or marginalized populations, creates collaborative partnerships with campus and community partners, and promotes dialogue and social change. One of the CDI's strategic priorities is to cultivate and foster a supportive campus climate for students of all backgrounds, cultures and identities. See: diversityinclusion.wustl.edu/