

# Capital University - Spring 2019

## CS 481/Math 481 Seminar

Instructor: Li Feng, Ph.D. (email: lfeng@capital.edu) Time/Day: 10:00-10:50 Monday  
Office: BHSN 117A, 614-236-6605, 409-692-9218 (mobile) Room: BHSN 358  
Office Hours: Monday 8:30am-9:00am, 1:30pm-2:30pm, Tuesday 8:30am-9:30am, Wednesday 8:30am-9:00am, 1:30pm-2:00pm, Thursday 8:30am-9:30am, Friday 8:30am-9:00am and by appointment.

**Catalog Description:** The study of topics not included in the usual curriculum; presentations by students doing research; lectures by visiting scientists and faculty. Open only to juniors and seniors or by special permission.

**Prerequisites:** None

**Credits:** 1

**Text:** None

### Course Goals

1. To develop independent learning and research skills in topics beyond the standard major curriculum. This meets the University learning goal of developing independent, lifelong learners.
2. To provide opportunities for students to gain experience in planning and delivering oral presentations. This meets the University learning goal of communicating clearly.
3. To improve technical writing skills. This meets the University learning goal of communicating clearly.
4. To provide opportunities for students to attend academic conferences and/or present their research to regional and national conferences and submit their work for publication. This meets the University learning goals of developing independent, lifelong learners and becoming independent, lifelong learners.

### Intended Learning Outcomes and Assessment Plan

1. Students will explore topics beyond the standard curriculum via a conference, paper, or presentation. This will be assessed by the conference report, research paper, or oral presentation.
2. Students will develop their communications skills. This will be assessed by the quality of the paper or presentation.

### Required Reading

varies, depending on project

### Assignments and Examinations

Assignments will be given in paper or posted on iLearn: <https://ilearn.capital.edu/>

Resume	10%	Expected outside of class work	Hours
Paper/Presentation	80%	Paper/Presentation	30
Attendance/Participation	10%		

## **Tentative Grading Scale**

Percentage	Letter Grade	Percentage	Letter Grade	Percentage	Letter Grade
93-100	A	80-82	B-	67-69	D+
90-92	A-	77-79	C+	60-66	D
87-89	B+	73-76	C	0-59	F
83-86	B	70-72	C-		

## **Resume Workshop**

Eric Anderson from Career Services will be giving a resume workshop in class on Jan 28th. You must submit a resume via email as an attachment (either .docx or .pdf) with the subject **resume** to Eric (eanderson@capital.edu and Cc: lfeng@capital.edu) by Monday Jan 21st at 5PM) so that Eric can review them beforehand. Please see the guidelines for writing a resume at:

[http://www.capital.edu/uploadedFiles/Content/Academics/Services\\_and\\_Programs/Career\\_Development/How%20to%20Write%20a%20Resume.pdf?n=9138](http://www.capital.edu/uploadedFiles/Content/Academics/Services_and_Programs/Career_Development/How%20to%20Write%20a%20Resume.pdf?n=9138).

On Jan 28th, you may bring a hardcopy or a laptop and Eric will have suggestions for improvements. Submitting it by Monday Jan 21st at 5PM and bringing it to class on Jan 28th will be 10% of your seminar grade.

## **Recruiter Talk**

A recruiter from TEKSystems will talk about job opportunities and requirements on Feb 4th.

## **Technical Talk**

Dr. William J. Bill will give a talk about prototyping application and game/VR development on Feb 11th. A Data Scientist from AEP will give a talk on data science on Feb 18th.

## **Presentation/Paper/Conference Requirements**

During your two or three semesters of Math/CS 481, you must give one presentation and write at least one research paper. If you are required to take three semesters of Math/CS481, you may attend a conference one semester. The intention is that students will start a research project and write a paper on their progress and then continue working on it and present their work during one of their last two semesters of Math/CS481. We also encourage students to present their work at Capital's Symposium on Undergraduate Research and conferences such as the spring MAA conference or the National Conference on Undergraduate Research.

Presentations must be 20-25 minutes in length (18-20 minutes if there are two presentations on the same day) and include the following: introduction/overview, outline of talk, details of research/development, summary/future work, and a bibliography. The bibliography must include at least five relevant sources and at least two of these must be books or journal articles (unless your topic advisor indicates otherwise). Presentation must have "slides" (typically created using PowerPoint) that are readable and contain appropriate content. A blue background with a white or yellow font is recommended for readability. Do not write out everything you are going to say. It is not necessary to have handouts, but if you have tables, figures, code fragments, etc. that you want handed out to the audience, please get them to me by the Wednesday before your presentation and I will have the division's secretary make copies at the department's expense. If your handouts are not ready by the Wednesday before your presentation, you are responsible for making your own copies.

While any quality presentation may include some material that is beyond the understanding of the general audience, you should make certain that the audience understands the basic idea of

what you are presenting. In many cases it is appropriate to include slides showing some details, but not spend a significant amount of time presenting them. For example, if part of your work involves solving a differential equation, it is appropriate to show the equation and your solution and give an overview of how you solved it, but do not go through the solution process in great detail. Similarly, if your work involves writing a computer program, you may show some of the code, but do not explain what each line of code does. Make your slides as readable as possible. Try to concentrate on the big picture and what you think your audience members should remember after the presentation is completed. The rubric for evaluating presentations will be provided to you on iLearn. You may earn an additional 5-10 percentage points on your presentation if the department agrees it is appropriate for presenting at Capital's scholarship symposium in the spring or at an external conference and you give the second presentation.

Papers must be 8-10 pages in length (single-spaced with a 11 or 12 pt font). If your paper requires figures or images, do not include these in the page totals. The bibliography counts for up to one page of text and the same guidelines for references mentioned earlier for presentations apply. The rubric for evaluating papers will be posted on iLearn.

If you attend a conference, you must attend at least two hours of talks and provide a half-page summary of each talk with one relevant question you had regarding each talk. You must get approval for the specific conference from an advisor, meet with the advisor before the conference to get approval for the talks you will be attending, and once following the conference to discuss your summaries of the talks.

### Conference Lists

OCWiC19 Ohio Celebration of Women in Computing, Huron, Feb 22 - 23, 2019  
<https://ocwic.hosting.acm.org/ocwic19/>

For each option, you must have with a faculty member from the department who agrees to advise you on your project. There is an "advising sheet" that you must fill out at each meeting and have the professor sign. The requirements for meetings for each option are:

#### Presentations:

Deadline	Requirement	Penalty
Fri 1/25 at noon	pick topic w/ approval	5 points off
6 weeks before presentation	update	5 points off
4 weeks before presentation	update	5 points off
1 week before presentation	rehearse	10 points off
Thursday before presentation at 5PM	abstract	10 points off

#### Papers:

Deadline	Requirement	Penalty
Fri 1/25 at noon	pick topic w/ approval	5 points off
2/11	outline and bibliography	5 points off
3/11	1/3 of rough draft	5 points off
4/8	complete rough draft	10 points off
4/22	paper due	20 points off

#### Conference:

Deadline	Requirement	Penalty
Fri 1/25 at noon	pick conference w/ approval	5 points off
one week before conference	choose talks w/ approval	10 points off
within 2 weeks after conference	rough draft of write-ups	10 points off
4/22	paper due	20 points off

## Policies

Your attendance and participation grade will be determined using the following rules. Any days that you are up to 5 minutes late, 5 percentage points will be deducted from your semester attendance grade. If you are 10 or more minutes late, 10 percentage points will be deducted from your semester attendance grade unless you are granted an excused absence. Rude behavior such as talking during a presentation will also result in up to 10 percentage points per class session being deducted from your semester attendance grade. Asking appropriate questions also contributes to your attendance/participation grade.

Laptops and cell phones are to be turned off or put on vibrate and put away during the class. Studies have shown that short distractions diminish your ability to comprehend material and they also distract the students sitting near you. Use of a cell phone or other similar electronic devices during class will result in deductions in your Attendance/Participation grade.

Academic Integrity: All assignments are to be your own work unless explicitly indicated otherwise. For programming assignments you may get help from the instructor or tutors. Any help you receive must be documented and submitted with the assignment. Violators will receive a zero for the assignment and the dean will be notified. Please review the Academic Integrity Policy in the Capital University student handbook.

University policies governing drop dates, penalties, plagiarism, and academic integrity, as detailed in the university bulletin, student handbook(s), and/or undergraduate time schedule, will be observed.

The office of Academic Success (Blackmore Library, 2nd floor) assists all students in becoming more confident, independent lifelong learners. Provided services include the following:

- Content area Peer Tutoring for math, science, and most other subjects.
- A Writing Center that serves as a resource for students engaged in any stage of the writing process for assignments in any course.
- Supplemental Instruction (SI) in support of selected courses.
- Academic Success Coaching to assist students with developing strategies for time management, organization, test preparation and test-taking strategies, goal setting, registration system navigation, reading degree audits, course sequencing, and more.
- Online eTutoring ([www.etutoring.org](http://www.etutoring.org)) for accounting, algebra, anatomy & physiology, calculus, chemistry, math, physics, statistics, and writing.
- Testing services to assist the Office of Disability Services in implementing testing accommodations for registered students.

Students can schedule an appointment ahead of time by calling Academic Success at (614) 236-6327, emailing AcademicSuccess@capital.edu, or stopping by our learning center on the second floor of Blackmore Library. Appointments can also be scheduled by logging into tutortrac.capital.edu. For additional information about Academic Success programs and services, contact Director Bruce Epps at bepps@capital.edu or (614) 236-6461. You can also follow us on Twitter and Instagram @CapitalUSuccess for updates and information.

Capital University is committed to providing reasonable accommodations for students with disabilities. If you are seeking academic accommodations you are required to register with the Office of Disability Services (ODS). To receive academic accommodations for this class, please register with ODS and meet with me at the beginning of the semester. Further information may be obtained by contacting Dr. Jennifer Speakman, Assistant Provost and Disability Services Director, by email (jspeakman@capital.edu) or by telephone (614.236.7127). This syllabus is available in alternate format upon request.

Capital University is committed to ensuring a safe environment free of discrimination on the basis of sex, including sexual misconduct and harassment. If you have experienced an incident of sex or gender-based discrimination, harassment, or sexual misconduct, we encourage you to report it. Capital University faculty are committed to supporting students, however, please understand that faculty are “responsible employees” of the University and must report incidents of sex- or gender-based discrimination, harassment, and sexual misconduct to the Title IX Coordinator, Dr. Jennifer Speakman. If you would like to make a confidential report, please refer to Capital University’s Sex- or Gender-Based Discrimination, Harassment, and Sexual Misconduct policy for more information on reporting options:  
<http://www.capital.edu/Title-IX-and-Sexual-Harassment/>.

### Advisor Topic Lists

Dr. Federico	Math modeling in ecology, infectious diseases/epidemiology, and other applications using differential equations, matrices, or individual-based models
Dr. Feng	see PDF on iLearn
Dr. Johnson	<a href="https://docs.google.com/document/d/1w-DwMi_0Pki4JH_vcka3DyrgoCLcL5K6tCtJosPw_ro/edit?usp=sharing">https://docs.google.com/document/d/1w-DwMi_0Pki4JH_vcka3DyrgoCLcL5K6tCtJosPw_ro/edit?usp=sharing</a>
Dr. Reed	see PDF on iLearn
Dr. Shields	computational modeling of physical systems
Dr. Stadler	<a href="https://www.dropbox.com/s/tlplcbpygqoamxz/SeminarTopicsStadler.pdf?dl=0">https://www.dropbox.com/s/tlplcbpygqoamxz/SeminarTopicsStadler.pdf?dl=0</a>

### Tentative course calendar

The last day to withdraw or choose the pass/fail option is March 15.

	Monday
1	1/7 - Course overview
2	1/14 - Meet with Faculty to pick a topic
3	1/21 - Martin Luther King's Day (No class) (Signup sheet Due Friday 1/25)
4	1/28 - Resume Workshop By Eric Anderson
5	2/4 - Recruiter Talk By TEKsystems
6	2/11 - Dr. William J. Ball's Talk
7	2/18 - Data Science Speaker from AEP
8	2/25 - Spring Break (No class)
9	3/4 - Presentation: Connor Barnes, Die Zhang
10	3/11 - Presentation: Andrew Choate, Thomas Stopak
11	3/18 - Presentation: Andrew Decker, Gavyn Partlow
12	3/25 - Presentation: Kathryn Stahl, George Park
13	4/1 - Presentation: Noah Sutton, Krista Taulker
14	4/8 - Presentation: Ethan Ave, Johnny Monsour
15	4/15 - Presentation: Thomas Knapke