BIOE 588: Biomedical Image Computing Capstone Project Literature Review

- **Semester**: Spring 2026
- **Credit hours**: 1
- **Time**: 10:00 AM - 10:50 AM F
- **Location**: 2101 Everitt Laboratory
- **Co-requisites**:
    - BIOE 484 Statistical Learning for Biomedical Image Analysis;
    - BIOE 486 Applied Deep Learning for Biomedical Imaging

Instructors

- Seonyeong Park, Ph.D. (sp33@illinois.edu)
- Yudu Li, Ph.D. (yuduli2@illinois.edu)
- Will Newman, Ph.D. (willn2@illinois.edu)
- Office Hours: Email Appointment

Course Description

This journal-club style course will expose students to the modern literature on biomedical imaging and machine learning. Students will be exposed to cutting edge topics in the rapidly evolving field of biomedical image computing. Additionally, the course will prepare students for the capstone project in the Biomedical Image Computing MS degree program that will take place in the third semester of the program. During this course, students will interact with potential project mentors and engage in detailed literature reviews related to potential projects.

Course Objectives

By the end of this course, students will be able to:

- Compose clear and precise written summaries and critiques of scientific papers.
- Create and deliver effective oral presentations.
- Articulate contemporary topics in the field of biomedical image computing.
- Identify leading venues for machine learning and biomedical imaging research.
- Articulate potential topics for their capstone project.

Required Resources

- No textbook is required.
- Reading material will be assigned from a combination of book chapters, review articles, and primary research papers.

Grading & Assessment

This course is **approved for S/U grading only**.

A minimum attendance rate of 80% is required to pass the course.

The overall course evaluation is based on the following components:

- Homework: 50%
- Presentations: 25%
- Participation: 25%

Criteria

Homework: 50%

Homework assignments consis of written paper summaries and critiques.

Beginning in Week 3, each lecture will feature presentations by two students, with each student presenting a distinct research paper. As a result, two research papers will be discussed in each session.

All students, including the presenters, are expected to read both papers in advance. Before each lecture, students must submit a **one-page written summary** of one of the two papers scheduled for discussion that week.

Note: While students may discuss the assigned papers with one another, all written summaries and presentation materials (slides) must be completed **independently**.

Presentations: 25%

Over the course of the semester, each student will deliver **two 15-minute presentations**:

- **Presentation 1**: Based on a paper selected from an instructor-provided paper list
- **Presentation 2**: Based on a paper independently selected by the student.

Students enrolled in the **online course** are required to **submit a recorded presentation** for each presentation assignment by the scheduled presentation date.

Participation: 25%

Students are expected actively and regularly contribute to in-class discussions.

Additional Course Polices

In general, homework deadlines will be firm. Special circumstances regarding absence or forbearance will be handled on a case-by-case basis at the discretion the instructor or program director. Please inform the instructor promptly if additional consideration is required.

Academic Integrity

In brief, an infraction of academic integrity is any one of the following:

- Cheating – using or attempting to use unauthorized materials
- Plagiarism – representing the words, work, or ideas of another as your own
- Fabrication – the falsification or invention of any information, including citations

- Facilitation – helping or attempting to help another commit an infraction
- Bribes, Favors, and Threats – actions intended to affect a grade or evaluation
- Academic Interference – tampering, altering or destroying educational material or depriving someone else of access to that material

It is the students' responsibility to refrain from infractions of academic integrity, from conduct that may lead to suspicion of such infractions, and from conduct that aids others in such infractions. "I did not know" is not an excuse. Please ask the instructor for clarification if you are unsure of their expectations. The complete text of the University of Illinois student code can be found online at http://studentcode.illinois.edu/article1/part4/1-401/. Additional relevant information may be found by searching "academic integrity" at the University of Illinois website (https://illinois.edu).

Students of various Schools, Colleges and Departments within the university may have additional rights, requirements or resources regarding academic integrity so students are encouraged to consult the information specific to their particular program.

Statement of Accessibility & Accommodation

To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES, you may visit 1207 S. Oak St., Champaign, call 333-4603, e-mail disability@illinois.edu or go to the DRES website. If you are concerned you have a disability-related condition that is impacting your academic progress, there are academic screening appointments available on campus that can help diagnosis a previously undiagnosed disability by visiting the DRES website and selecting "Sign-Up for an Academic Screening" at the bottom of the page.

Tentative Schedule

Week	Spring 2026	Topic	Lecturer
1	Jan 23	How to read a research paper	TBD
2	Jan 30	How to give a research presentation	TBD
3	Feb 6	Discussion of research papers - Paper 1 (15-min presentation, 15-min discussion) - Paper 2 (15-min presentation, 15-min discussion)	TBD
4	Feb 13	Discussion of research papers - Paper 1 (15-min presentation, 15-min discussion) - Paper 2 (15-min presentation, 15-min discussion)	TBD
5	Feb 20	Discussion of research papers - Paper 1 (15-min presentation, 15-min discussion) - Paper 2 (15-min presentation, 15-min discussion)	TBD
6	Feb 27	Discussion of research papers - Paper 1 (15-min presentation, 15-min discussion) - Paper 2 (15-min presentation, 15-min discussion)	TBD

Week	Spring 2026	Topic	Lecturer
7	Mar 6	Discussion of research papers - Paper 1 (15-min presentation, 15-min discussion) - Paper 2 (15-min presentation, 15-min discussion)	TBD
8	Mar 13	Discussion of research papers - Paper 1 (15-min presentation, 15-min discussion) - Paper 2 (15-min presentation, 15-min discussion)	TBD
9	Mar 20	**Spring Break** (No Class)	
10	Mar 27	Discussion of research papers - Paper 1 (15-min presentation, 15-min discussion) - Paper 2 (15-min presentation, 15-min discussion)	TBD
11	Apr 3	Discussion of research papers - Paper 1 (15-min presentation, 15-min discussion) - Paper 2 (15-min presentation, 15-min discussion)	TBD
12	Apr 10	Discussion of research papers - Paper 1 (15-min presentation, 15-min discussion) - Paper 2 (15-min presentation, 15-min discussion)	TBD
13	Apr 17	Discussion of research papers - Paper 1 (15-min presentation, 15-min discussion) - Paper 2 (15-min presentation, 15-min discussion)	TBD
14	Apr 24	Discussion of potential capstone projects and teams	TBD
15	May 1	Discussion of potential capstone projects and teams	TBD