Com S 418/518 Syllabus

Canvas & Web page

We will combine the uses of Canvas and a conventional web page for this course. Check out Canvas for:

- Announcements related to the course;
- Clarifications and answers to questions about homeworks in Discussions;
- Assignments (submissions of **code online** and **written problems on hard copy**);
- Sample solutions to assignments and exams;
- Grades.

You are suggested to login to Canvas on a regular basis for announcements regarding homeworks, exams, and other information.

The class also has a conventional web page located at http://www.cs.iastate.edu/~cs518/. Here you will find some important materials:

- Course syllabus & schedule;
- Semester and weekly schedules (including office hours in the latter schedule);
- **Lecture notes** (aka "text" for the course).

Introduction and Objective

Introduction to data structures, algorithms, and analysis techniques for computational problems that involve geometry. Line segment intersection, polygon triangulation, 2D linear programming, range queries, point location, arrangements and duality, Voronoi diagrams and Delaunay triangulation, convex hulls, robot motion planning, visibility graphs. Other selected topics. Programming assignments. A scholarly report must be submitted for graduate credit. Com S 418 is open for nonmajor graduate credit.

Prerequisite

Com S 311 or permission of instructor.

Textbook

M. de Berg, O. Cheong, M. van Kreveld, and M. Overmars. Computational Geometry: Algorithms and Applications (3rd edition). Springer-Verlag, 2008. ISBN: 978-3-642-09681-5.

The book is accompanied by a website http://www.cs.uu.nl/geobook/ which provides additional material such as pointers to software and research papers.

For general background on algorithms, you can consult the following.

J. Kleinberg and E. Tardos, Algorithm Design, Addison-Wesley, 2005; ISBN 0-321- 29535-8.

T. H. Cormen, C. E. Leiserson, R. L. Rivest and C. Stein, Introduction to Algorithms, Third Edition, MIT Press, 2009; ISBN 978-0-262-03384-8.

Evaluation

Grading will be based on a midterm and a final exams, homeworks, a programming project which involves algorithm design with *written description*, and for graduate credit, an essay on some additional topic assigned by the instructor or self-chosen with the instructor's consent. The essay for graduate credit will require approximately 10 to 15 hours of self-study and writing and make up 5% of the total grade.

Grades will be on the following scales:

	Homeworks	Project	Midterm	Final	Essay
undergrad	35%	10%	22%	33%	
grad	33.25%	9.5%	20.9%	31.35%	5%

Your final grade will be decided by the following **grading scale** subject to minor adjustments:

at least 85	A
at least 80 but less than 85	A-
at least 75 but less than 80	B+
at least 70 but less than 75	B
at least 65 but less than 70	B-
at least 60 but less than 65	C+
at least 55 but less than 60	C
at least 50 but less than 55	C-
at least 47 but less than 50	D+
at least 43 but less than 47	D
at least 40 but less than 43	D-
less than 40	F

Assignments

There will be up to 12 homework assignments, plus a programming project. All assignments will be posted on Thursdays, starting Jan 17, and due on Thursdays of the following weeks, starting Jan 24. No homework will be due in the first week, the last week, and the midterm exam week.

The homework must be submitted at the **beginning of the lecture on the due date**. Any homework turned in after this time will be considered late. Late homework will be accepted until 5pm on the due date for a **penalty of 30%**. **No homework will be accepted after 5pm**.

Exams

There will be one midterm exam in class on Tuesday March 5, and a final exam to be determined.

Office Hours

Listed under the front page and the Schedule page, or by appointment. You can ask any questions that you may have regarding lecture material, exams or homework.

General Constact Instructions

If you have a general question about the course or about an assignment, the best place to start is on one of the Canvas discussion topics, where it will be seen by the instructor and the rest of the class. However, please do not post personal information, or your solution to an assignment, on Canvas. If a quick response is necessarily preferred, you may consider e-mailing the instructor (jia@iastate.edu) or the TA (mattga@iastate.edu).

Academic Honesty

In this course, you may discuss assignments with other students. (Do not assume this is true in all your courses!) We expect you to think through and fully understand assignment solutions. Thus, the solutions you turn in must be written based on your own understanding. Plagiarism will be dealt with harshly. You should consult the University Policy for details regarding academic misconduct and its consequences.

Disabilities for Special Accommodations

Iowa State University complies with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. Any student who may require an accommodation under such provisions should contact the instructor as soon as possible and no later than the end of the first week of class or as soon as you become aware. Please obtain a SAAR (Student Academic Accommodation Request) form verifying your disability and specifying the accommodation you will need. No retrospective accommodations will be required in this class.

Harassment and Discrimination

Iowa State University strives to maintain our campus as a place of work and study for faculty, staff, and students that is free of all forms of prohibited discrimination and harassment based upon race, ethnicity, sex (including

sexual assault), pregnancy, color, religion, national origin, physical or mental disability, age, marital status, sexual orientation, gender identity, genetic information, or status as a U.S. veteran. Any student who has concerns about such behavior should contact his/her instructor, Student Assistance at 515- 294-1020 or email dso-sas@iastate.edu, or the Office of Equal Opportunity and Compliance at 515-294-7612.

Religious Accommodation

If an academic or work requirement conflicts with your religious practices and/or observances, you may request reasonable accommodations. Your request must be in writing, and your instructor or supervisor will review the request. You or your instructor may also seek assistance from the Dean of Students Office or the Office of Equal Opportunity and Compliance.