

STAT 514 Design of Experiments
Fall 2022
CRN 28563, 12:00-01:15pm, TR, Wang Hall 2579
CRN 27524, EPE Online
CRN 30590, Special Online (Restricted)

Course Information

The following course website has datasets, SAS programs, lecture notes, homework, and project assignments that the Brightspace course website refers to:

<https://www.stat.purdue.edu/~zhanghao/STAT514/>

Instructor

Professor Hao Zhang, zhanghao@purdue.edu

WebEx: <https://purdue.webex.com/meet/zhanghao>

Meeting number: 642 196 228

Call-in: +1-855-282-6330, Access Code: 642 196 228

Office Hours:

Monday, 4-5pm (walking-in)

Tuesday, 4-5pm (email me in advance)

Wednesday and Thursday, 7-7:30 (email me in advance)

All office hours are held through WebEx.

The best way to reach the instructor is through email with a subject that begins "STAT 514:" (please include the colon).

Course Description and Learning Outcomes

The course introduces the principles of experimental design and the appropriate analysis for experimental design data. Tentative coverage of designs includes completely randomized designs, complete block designs, incomplete block designs, row-column (Latin square and Youden) designs, nested designs, split-plot designs, repeated measures design. For each design, appropriate statistical models, estimates and sample size issues will be discussed, and SAS programs demonstrated. By the end of the course, students will be able to apply common designs of experiments to their fields of study, analyze data from designed experiments using computer programs and correctly interpret the statistical results.

Learning Resources, Technology & Texts

- Required textbook: Design and Analysis of Experiments (2nd Edition) by A. Dean, D. Voss and D. Draguljic. Springer International Publishing AG 2017. Online access available through Purdue library and PDF version is freely downloadable.
- Additional reading: Will be assigned in class.

- Computer language: SAS is required but previous knowledge of SAS is not necessary. All students have access to SAS through Purdue. More information will be provided in class.

Assignments

Your learning will be assessed through a combination of homework, projects, a middle term exam, and a group presentation. Details on these assignments and exams, including a schedule of due dates, rubrics to guide evaluation, and guidelines on discussion participation and evaluation will be posted on the course website and Brightspace. Homework and projects shall be submitted electronically through Brightspace.

Grading Scale

Grades reflect the sum of your achievement throughout the semester. Your final grades will be based on all the assignments and calculated through a weighted average. Specific weights of the assignments are as follows:

Assignment	<i>Homework</i>	<i>Exam</i>	<i>Projects</i>	<i>Presentation</i>
Weight	35%	35%	20%	10%

Your final grade will be based on the following scale:

A+: 97% or above

A: 93%-97%

A-: 90% - 93%

B+: 87% - 90%

B: 83% - 87%

B-: 80% - 83%

C+: 77% - 80%

C: 73% - 77%

C-: 70% - 73%

D+: 67%- 70%

D: 63% - 67%

D-: 60% - 63%

F: <60%

If your score falls on the boundary, say, 87%, your grade will be in the higher bracket, i.e., B+.

Attendance Policy

This course follows Purdue's academic regulations regarding attendance, which states that students are expected to be present for every meeting of the classes in which they are enrolled. Attendance will be taken at the beginning of each class and lateness will be noted. When conflicts or absences can be anticipated, such as for many University-sponsored activities and religious observations, the student should inform the instructor of the situation as far in advance as possible. For unanticipated or emergency absences when advance notification to the instructor is not possible, the student should contact the instructor as soon as possible by email or phone. When the student is unable to make direct contact with the instructor and is unable to leave word with the instructor's

department because of circumstances beyond the student's control, and in cases falling under excused absence regulations, the student or the student's representative should contact or go to [the Office of the Dean of Students \(ODOS\)](#) website to complete appropriate forms for instructor notification. Under academic regulations, excused absences may be granted by ODOS for cases of grief/bereavement, military service, jury duty, parenting leave, or emergent or urgent care medical care.

Academic Guidance in Event of Q/I sample language:

If you must miss class at any point in time during the semester, please reach out to me via Purdue email so that we can communicate about how you can maintain your academic progress. For COVID-19 concerns, please see the [Fall 2022: What you need to know guidance published July 27](#). If you find yourself too sick to progress in the course, notify your adviser and notify me via email or Brightspace. We will make arrangements based on your particular situation.

Academic Integrity

Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breaches of this value by either emailing integrity@purdue.edu or by calling 765-494-8778. While information may be submitted anonymously, the more information is submitted the greater the opportunity for the university to investigate the concern. More details are available on our course Brightspace table of contents, under University Policies.

Nondiscrimination Statement

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life.

Mental Health/Wellness Statement

If you find yourself beginning to feel some stress, anxiety and/or feeling slightly overwhelmed, try [WellTrack](#). Sign in and find information and tools at your fingertips, available to you at any time.

If you need support and information about options and resources, please contact or see the [Office of the Dean of Students](#). Call 765-494-1747. Hours of operation are M-F, 8 am- 5 pm.

If you find yourself struggling to find a healthy balance between academics, social life, stress, etc. sign up for free one-on-one virtual or in-person sessions with a [Purdue Wellness Coach at RecWell](#). Student coaches can help you navigate through barriers and challenges toward your goals throughout the semester. Sign up is completely free and can be done on

BoilerConnect. If you have any questions, please contact Purdue Wellness at evans240@purdue.edu.

If you're struggling and need mental health services: Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, services are available. For help, such individuals should contact [Counseling and Psychological Services \(CAPS\)](#) at 765-494-6995 during and after hours, on weekends and holidays, or by going to the CAPS office on the second floor of the Purdue University Student Health Center (PUSH) during business hours.

Basic Needs Security

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. There is no appointment needed and Student Support Services is available to serve students 8 a.m.-5 p.m. Monday through Friday. Considering the significant disruptions caused by the current global crisis as it related to COVID-19, students may submit requests for emergency assistance from the [Critical Needs Fund](#)

Emergency Preparation

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. Relevant changes to this course will be posted onto the course website or can be obtained by contacting the instructors or TAs via email or phone. You are expected to read your @purdue.edu email on a frequent basis.

The instructor remains the right to make any revisions regarding course contents, grading scale and course policies that he deems academically advisable.