Note: Syllabus details subject to change, depending on covid situation and/or mid-course improvements. Prof. Whitten will communicate any syllabus changes by ICON Announcement and in class.

Instructor: Blake Whitten  Office: 260 SH  phone: 319-335-0647  blake-whitten@uiowa.edu
Prof. Whitten’s Drop-In Help Hours:  (Please note different modalities and locations!)
  • Monday 10:30–11:30  (in-person in Office 260 SH)
  • Wednesday 2:00–3:00  (virtual by Zoom)
  • Friday 1:30–2:30  (starts in-person in 101 BBE immediately following class, may shift location to 260 SH, depending on student demand)

Teaching Assistant: Zhenhan Fang  Office: 256 SH  zhenhan-fang@uiowa.edu
Zhenhan’s Drop-In Help Hours: 1:30–3:00 Tuesday/Thursday in Office 256 SH  (all in-person)

Lecture: 12:30–1:20 101 BBE
Discussions: Tues/Thurs at 3:30-4:20 and 5:00–5:50  (see MyUI for specific schedules and locations)

**Focus** of our **Biostatistics** course (Prof. Whitten’s description):

The collection and interpretation of, and decision-making from, data (i.e., “small packets” of information) related to Biology (study of living organisms) — often particularly human biology, human physiology, and the related fields of medicine and health care.

This focus touches many of the declared majors for enrolled students in our class (as of 8/21/2021):

<table>
<thead>
<tr>
<th>Major</th>
<th>Number</th>
<th>Major</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology</td>
<td>1</td>
<td>Human Physiology</td>
<td>41</td>
</tr>
<tr>
<td>Biology</td>
<td>37</td>
<td>Interdepartmental Studies</td>
<td>2</td>
</tr>
<tr>
<td>Biomedical Engineering</td>
<td>4</td>
<td>Microbiology</td>
<td>2</td>
</tr>
<tr>
<td>Biomedical Sciences</td>
<td>3</td>
<td>Nursing Interest</td>
<td>1</td>
</tr>
<tr>
<td>Chemistry</td>
<td>6</td>
<td>Pharmacy Interest</td>
<td>1</td>
</tr>
<tr>
<td>Engineering Interest</td>
<td>1</td>
<td>Pre-Medicine</td>
<td>3</td>
</tr>
<tr>
<td>Environmental Sciences</td>
<td>2</td>
<td>Pre-Physical Therapy</td>
<td>2</td>
</tr>
<tr>
<td>German</td>
<td>1</td>
<td>Pre-Physician Assistant Program</td>
<td>1</td>
</tr>
<tr>
<td>Health and Human Physiology</td>
<td>5</td>
<td>Psychology</td>
<td>1</td>
</tr>
</tbody>
</table>

But non-medical and non-biology majors fear not! The basics of Statistics (drawing sensible conclusions from sample data) apply universally to all careers and fields of study. This semester we simply learn Statistics through the prism of applications to the biological and life sciences.
Course Engine

The central engine that powers our course is an excellent textbook and supporting online platform called MyLab Statistics.

- **Textbook:** Biostatistics for the Biological and Health Sciences, 2nd edition, 2018, Pearson Publishing by Triola, Triola, Roy
  
  - Mario Triola – Professor, master Statistics teacher and textbook author
  - Marc Triola (related to Mario?) – MD, Associate Professor of Medicine. Specializes in “disruptive” (innovative) data-driven medical education.
  - Jason Roy – Associate Professor of Biostatistics

- **Pearson MyLab** is the best online Statistics platform among leading publishing companies — Prof. Whitten’s opinion based on his periodic subject-matter consulting work for Pearson, McGraw-Hill, Wiley, and Freeman publishers.

- Course learning objectives build on each other and are organized by textbook chapter.

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**Weekly Schedule** (see ICON Modules for details)

Biostats has a predictable “rhythm” (typical weekly schedule), described below:

- **Online** — A textbook reading assignment starts each week, followed by online homework and subsequent online homework quiz to test homework comprehension.
  
  - The reading assignment and/or homework may be supported by online multimedia such as author videos, interactive textbook flowcharts and (computer-generated random) animations. We use hand calculators for easier calculations and StatCrunch statistical software for harder ones.

- **Mon/Wed Classes** — Prof. Whitten’s tips, elaborations, and extra practice over recent textbook topics. Students may sometimes need to download, print, and bring a lecture worksheet to write answers in class.

- **Tues/Thurs Discussions** — Zhenhan reviews recent textbook reading/homework, often as a prep for Friday’s in-class quiz. Emphasis is on group work and cooperative learning.

- **Friday** — Typically, students take an in-class written quiz over the previous week’s reading and homework assignments.

  **Note:** Weekly Friday quizzes replace midterm exams. (No midterm exams in Biostats!)

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<table>
<thead>
<tr>
<th>ONLINE</th>
<th>IN-PERSON</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Textbook Reading + MyLab Multimedia</strong></td>
<td><strong>M/W Classes</strong></td>
</tr>
<tr>
<td><strong>Online Homework</strong></td>
<td><strong>T/Th Discussions</strong></td>
</tr>
<tr>
<td><strong>Online HW Quiz</strong></td>
<td><strong>Friday In-Class Quiz</strong></td>
</tr>
</tbody>
</table>

MyLab Personalized Study Plan -- (Quiz prereq but ungraded)
Course Grade Components

1. Discussion Participation – 10%
   - Discussion scores are based on both attendance and active participation within Discussion. The TA has sole authority to grade students on Discussion participation. Please refer questions to Zhenhan.
   - Discussion scores are recorded and updated weekly as Roll Call Attendance in the ICON Grade Book.
   - Students may miss up to two Discussions “for free” — without grading penalty — as an explicit allowance for necessary absence, for instance, due to illness or family emergency.

2. Online Homework – 15%
   - Online homework questions are typically similar to textbook exercises but often feature algorithmically-generated data that differs from the textbook. Students may make up to five attempts for each homework question. Tips and online help within MyLab are available for some questions.
   - Homework is due within an assigned time window (approximately one week. See ICON Modules for details.) Late homework may be submitted up to one week late but at a 25% grading penalty. (Late submissions are prorated to 75% of the available points.)
   - Honor Code: Students may consult with each other and TA/prof regarding missed homework answers before retrying questions but must actually answer questions on their own, without assistance.

3. Online Quizzes – 25%
   - Online quizzes test comprehension of online homework.
   - Online homework quizzes are timed for 30 minutes and allow a single attempt per question, with no online tips or help.
   - Online quizzes are time-sensitive and may not be made up or submitted late. But as an explicit allowance for necessary absence (e.g., illness, family emergency or NCAA competition), the lowest two scores are dropped from the course grade calculation.
   - Honor Code: Students may neither assist other students nor accept assistance from any other person.

4. Friday In-Class Quizzes – 25%
   - In-class quizzes are timed. (Timing may vary by quiz.) Quizzes are time-sensitive and may not be made up. But as an explicit allowance for necessary absence (e.g., illness, family emergency or NCAA competition), the lowest two scores are dropped from the course grade calculation at semester’s end.
   - Honor Code: Students may neither assist other students nor receive assistance.

5. Comprehensive Final Exam – 25%
   - The final exam is comprehensive (covers the entire course) and timed for two hours according to the UI final exam schedule.
   - Honor Code: Students may neither assist other students nor receive assistance.
The listed schedule is approximate and subject to modification. Some less-relevant sections of some textbook chapters are excluded from our course.

<table>
<thead>
<tr>
<th>Chapter Number</th>
<th>Chapter Topic</th>
<th># of Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to Statistics</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Exploring Data with Tables and Graphs</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Describing and Comparing Data</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Probability</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Discrete Probability Distributions</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Normal Probability Distribution</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Confidence Intervals &amp; Sample Sizes</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Hypothesis Tests</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Correlation and Regression</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>14</strong></td>
</tr>
</tbody>
</table>

The final week of the semester is reserved for course review.

Required Course Tools *

* See details in the Required Biostats Tools ICON Announcement on the ICON Homepage.

1. Hand calculator that calculates both standard deviation and regression from data input. Cell phones are not sufficient. Students may not use cell phones or share calculators during in-person quizzes. Bring your own calculator to every class and Discussion.

2. Online access to Triola Biostatistics. Automatically available to students through ICON Direct. The price $63.99 is charged to the student’s U-bill unless the course is officially dropped by the end of the second week of classes (Sept. 3.)

- Students who prefer a printed hard copy textbook to supplement the e-book may purchase the loose-leaf, three-hole-punched printed text for $58.83 (includes tax) from the Iowa Hawk Shop in the IMU. (Use your own three-ring binder.)

Biostats Learning Strategy and Philosophy: A Growth Mindset

What does growth mindset mean? Prof. Whitten found this definition from a Google search:

In a growth mindset, people believe that their most basic abilities can be developed through dedication and hard work — brains and talent are just the starting point. This view breeds confidence and creates a resilience that is essential for great accomplishment.

Example: Contrast the following two student approaches to Biostats:

- “I do not expect to do well in Biostats. I’ve never done well in math classes and I don’t have that skill.”
- “I know that Biostats will be hard and a lot of work. I expect to need to make many (painful) mistakes along the way in order to learn and master each topic in the course.”

This semester, both students AND the instructor need a growth mindset! Prof. Whitten will be busy struggling to learn to teach with MyLab as students learn Biostats! :)
Course Grades

Course grades are criterion-based, not curve-based to promote cooperative learning among students. Grades accurately assess each student’s individual course performance.

- **Calculate your own Course Percent:**

  1. First, drop the two lowest Online Quiz scores and the two-lowest In-Person Quiz scores. Then calculate Online Quiz Percent from the remaining Online Quiz scores. Similarly, calculate In-Person Quiz Percent from the remaining In-Person Quiz scores.

  2. Now, calculate the Course Percent according to the following formula:

     \[
     \text{Course Percent} = (0.10)(\text{Discussion Participation}) + (0.15)(\text{Online Homework Percent}) \\
     + (0.25)(\text{Online Quiz Percent}) + (0.25)(\text{In-Person Quiz Percent}) + (0.25)(\text{Final Exam})
     \]

- **Course Letter Grades**

  Grades are earned according to the minimum Course Percent:

<table>
<thead>
<tr>
<th>Course Percent</th>
<th>Grade</th>
<th>Course Percent</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>92%</td>
<td>A</td>
<td>72%</td>
<td>C</td>
</tr>
<tr>
<td>90%</td>
<td>A−</td>
<td>70%</td>
<td>C−</td>
</tr>
<tr>
<td>88%</td>
<td>B+</td>
<td>68%</td>
<td>D+</td>
</tr>
<tr>
<td>82%</td>
<td>B</td>
<td>62%</td>
<td>D</td>
</tr>
<tr>
<td>80%</td>
<td>B−</td>
<td>60%</td>
<td>D−</td>
</tr>
<tr>
<td>78%</td>
<td>C+</td>
<td>Below 60%</td>
<td>F</td>
</tr>
</tbody>
</table>

  For example, a 87.99% Course Percent earns a grade of B in STAT 3510. All students earn grades on the same scale, without exception.

Honor Code

Course policies are governed by the College of Liberal Arts and Sciences. Cheating (academic misconduct) in STAT 3510 is unethical and unfairly punishes honest students. Cheating includes, but is not limited to, copying or communicating with other students during quizzes or exams, and unauthorized use of notes, computer files, or other study aids. Academic misconduct may result in any and all of the following sanctions:

1. A report is filed with the College. You may be placed on academic probation for 5 years, suspended, or expelled.

2. The student earns a 0 on the quiz/exam on which the academic misconduct occurs.

3. The student is not be able to drop the lowest 2 quiz scores if misconduct occurs on a quiz.

4. The student may be assigned a failing course grade (grade of F) or the course grade may be lowered by two full letters (e.g. from a B+ to a D+) at semester’s end.
ATTENDANCE AND CLASSROOM EXPECTATIONS
Students are responsible for attending class and for knowing an instructor’s attendance policies, which vary by course and content area. All students are expected to attend class and to contribute to its learning environment in part by complying with University policies and directives regarding appropriate classroom behavior or other matters.

ABSENCES
Students are responsible for communicating with instructors as soon they know that an absence might occur or as soon as possible in the case of an illness or an unavoidable circumstance. Students can use the CLAS absence form to help communicate with instructors who will decide if the absence is excused or unexcused; the form is located on ICON within the top banner under “Student Tools.” Delays by students in communication with an instructor could result in a forfeit of what otherwise might be an excused absence (https://clas.uiowa.edu/students/handbook/attendance-absences).

ABSENCES: ILLNESS, UNAVOIDABLE CIRCUMSTANCES, AND UNIVERSITY SPONSORED ACTIVITIES
Students who are ill, in an unavoidable circumstance affecting academic work, or who miss class because of a University sponsored activity are allowed by UI policy to make up a missed exam. Documentation is required by the instructor except in the case of a brief illness. Students are responsible for communicating with instructors as soon as the absence is known (https://opsmanual.uiowa.edu/students/absences-class#8.1).

ABSENCES: HOLY DAYS
Reasonable accommodations are allowed for students whose religious holy days coincide with their classroom assignments, tests, and attendance if the student notifies the instructor in writing of any such religious Holy Day conflicts within the first days of the semester and no later than the third week. (See the UI Operations Manual, https://opsmanual.uiowa.edu/students/absences-class#8.2).

ABSENCES: MILITARY SERVICE OBLIGATIONS
Students absent from class due to U.S. veteran or U.S. military service obligations (including military service-related medical appointments, military orders, and National Guard Service obligations) must be excused without penalty. Instructors must make reasonable accommodations to allow students to make-up exams or other work. Students must communicate with their instructors about the expected possibility of missing class as soon as possible. (For more information, see https://opsmanual.uiowa.edu/iv-8-absences-class%2C2%2A0-0).

ACADEMIC MISCONDUCT
All undergraduates enrolled in courses offered by CLAS have in essence agreed to the College's Code of Academic Honesty. Academic misconduct affects a student’s grade and is reported to the College which applies an additional sanction, such as suspension. Outcomes about misconduct are communicated through UI email (https://clas.uiowa.edu/students/handbook/academic-fraud-honor-code).

ACADEMIC ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES
UI is committed to providing an educational experience that is accessible to all students. A student may request academic accommodations for a disability (such as a mental health, attention, learning, vision, and a physical or health-related condition) through the Student Disability Services (SDS) office. The student is responsible for discussing specific accommodations with the instructor. Note that accommodations are not granted retroactively but from the time of the student’s request to the instructor onward; additionally, accommodations must be requested at least two weeks in advance of the related assignment or exam (https://sds.studentlife.uiowa.edu/).

CLASS RECORDINGS: PRIVACY AND SHARING
Course lectures and discussions are sometimes recorded or live-streamed. These are only available to students registered for the course and the intellectual property of the faculty member. These materials may not be shared or reproduced without the explicit written consent of the instructors. Students may not share these recordings with those who are not enrolled in the course; likewise, students may not upload recordings to any other online environment. Doing so is a breach of the Code of Student Conduct and could be a violation of the Federal Education Rights and Privacy Act (FERPA); also see https://dos.uiowa.edu/policies/code-of-student-life/.
COMMUNICATION: UI EMAIL
Students are responsible for all official correspondences sent to their UI email address (uiowa.edu) and must use this address for any communication with instructors or staff in the UI community (Operations Manual, III.15.2). Emails should be respectful and brief, with complex matters addressed during the instructor’s drop-in hours, for example. Faculty are not expected to answer email after business hours or during the weekends.

COMPLAINTS ABOUT ACADEMIC MATTERS
Students with a complaint about a grade or a related academic issue should first visit with the instructor and then with the course supervisor (if one is assigned), and next with the Chair of the department or program offering the course. If not resolved, students may bring their concerns to the College of Liberal Arts and Sciences: https://clas.uiowa.edu/students/handbook/student-rights-responsibilities.

FINAL EXAMINATION POLICIES
The final exam schedule is published during the fifth week of the fall and spring semesters or on the first day of summer classes; students are responsible for knowing the date, time, and place of their final exams. Students should not make travel plans until knowing this information. A student with exams scheduled on the same day and time or who have more than two final exams on the same day should visit this page for how to resolve these problems by the given deadline: https://registrar.uiowa.edu/makeup-final-examination-policies. No exams may be scheduled the week before finals; some exception, however, have been made for labs, language courses, and off-cycle courses (https://registrar.uiowa.edu/final-examination-scheduling-policies).

FREE SPEECH AND EXPRESSION
The University of Iowa supports and upholds the First Amendment protection of freedom of speech and the principles of academic and artistic freedom. We are committed to open inquiry, vigorous debate, and creative expression inside and outside of the classroom. Visit Free Speech at Iowa for more information on the University’s policies on free speech and academic freedom (https://freespeech.uiowa.edu/).

HOME OF THE COURSE
The College of Liberal Arts and Sciences (CLAS) is the home of this course, and CLAS governs the course’s add and drop deadlines, the “second-grade only” option (SG0), and other undergraduate policies and procedures. Different UI colleges may have other policies or deadlines. See https://clas.uiowa.edu/students/handbook. Questions? Contact CLAS at clasps@uiowa.edu or 319-335-2633.

MENTAL HEALTH
Students are encouraged to seek help as a preventive measure or if feeling stressed or overwhelmed. Students should talk to their instructors for guidance with specific class-related concerns and are encouraged to contact University Counseling Service (UCS) at 319-335-7294 during regular business hours to schedule an appointment. UCS offers group and individual therapy as well as counseling for couples about relationships while making referrals to other resources (https://counseling.uiowa.edu/). Student Health can also address related concerns (https://studenthealth.uiowa.edu/). These visits are free to students. After hours, students are encouraged to call the Johnson County Community Crisis Line at (319) 351-0140 or dial 911 in an emergency.

NONDISCRIMINATION IN THE CLASSROOM
The University of Iowa is committed to making the classroom a respectful and inclusive space for people of all gender, sexual, racial, religious, and other identities. Toward this goal, students are invited in MyUI to optionally share the names and pronouns they would like their instructors and advisors to use to address them. The University of Iowa prohibits discrimination and harassment against individuals based on race, class, gender, sexual orientation, national origin, and other identity categories indicated by the University’s Human Rights policy. Contact the Office of Equal Opportunity and Diversity at https://diversity.uiowa.edu/division/office-equal-opportunity-and-diversity-eod.

SEXUAL HARASSMENT
Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff; all members of the UI community are expected to conduct themselves in a manner that maintains an environment free from sexual harassment and sexual misconduct. Those experiencing sexual harassment are strongly encouraged to report the incidents and to seek help (https://osmrc.uiowa.edu/).