Seattle University   Course: ECON2100   Credits: 5
Winter 2021 - Asynchronous Online Mode
Instructor: Jane Muhich
Office Hours: By Zoom appointment
Email: Please contact your instructor via MyOpenMath messaging if you have questions.
Last Update: 12/31/2020

COURSE BASICS

Course Description:

This is a course in statistical thinking. It introduces students to basic concepts of statistics and how to work with data, graphically and numerically. Statistical inference concepts like hypothesis testing and confidence intervals are included. These topics help students develop critical reasoning skills necessary to understand our quantitative world.

Exams:
There are 4 scheduled exams. There are 3 regular exams and a comprehensive final. You are required to take all exams on the dates designated on our course calendar. You will have a 24 hour window to complete your exams beginning at 12 am on these dates. **Set aside February 2, February 19, March 12 and March 18**

Learning Outcomes:
As a result of taking this course, students will be able to:
1. Summarize and describe data graphically using bar charts, pie charts, histograms and others.
2. Summarize and describe data numerically using mean, median, standard deviation and others.
3. Use graphs and basic statistics to analyze, interpret and draw conclusions about the data.
4. Identify the pitfalls of bad sampling methods; Use real life data sets to discuss and identify good sampling techniques.
5. Use properties of basic probability to compute the probabilities of normally distributed data sets.
6. Apply concepts of sampling distributions and the central limit theorem and use these to analyze, describe and measure sampling variability.
7. Conduct hypothesis testing and calculate confidence intervals for one-sample mean and proportions
8. Identify and explain the limitations of statistical inferences.

If you would like more information on how the activities in the course course support the learning outcomes, please see this [LINK].

Grades:

The course grade is weighted as follows. Points* and the number of assignments are close but not exact.

Activity	Percent of grade	Details
Reading Assignments and Checkpoints	10%	Points on each varies based on content
Homework Sets and Handwritten Write-Ups	15%	7 online homework sets (pts vary), 7 handwritten write-ups (20 pts each), syllabus assignment
Data Labs	10%	7 total, about 350 total points
Quizzes	15%	7 Topic quizzes, 350 points
4 Exams	50%	4 exams, 100 points each, lowest exam score is dropped

*Points are not equivalent across categories. Maximize your percent in each category to do well.

A 97% assures a 4.0. A 77% assures a 2.0. All other grades are computed with a linear formula that goes through those two points [(97, 4.0) and (77, 2.0)]. At the end of the quarter, I may adjust the percentages for a 4.0 and/or a 2.0, but not above the numbers stated here.

If you are not progressing as intended it is your responsibility to withdraw from the class by the established due date. Grades of No Credit (NC) or Incomplete (INC) will not be given.

Late Policy:

Electronic Late Passes (described below) are allowed for Homework, Quizzes, Reading Assignments, and Data Labs. They are not allowed for the exams. If an emergency arises (documented illness, death in the family, etc, contact your instructor immediately.) See "Course Details" section below for more information on Late Passes. There are penalties for situations where an instructor, at his/her discretion, extends a due date due to a student not following directions or guidelines (see below for details).

Course Communications:

Critical course information will be communicated in our weekly course overview, Canvas announcements and MyOpenMath messages. It is your responsibility to read your weekly course overview and any additional announcements and messages. If a MyOpenMath message requires a response, you are expected to respond within 48 hours. Lack of reading your course information and/or not responding within the 48 hour window will not be an accepted excuse for not receiving and/or responding to critical course information in a timely fashion.

Course Topics (Outline):

1. Examining Distributions
2. Examining Relationships
3. Sampling, Study Design, and Introduction to Probability
4. Random Variables
5. Sampling Distributions
6. Introduction to Inference and Estimation
7. Hypothesis Testing with One Sample

COURSE DETAILS

Methods of Instruction:
- The primary methods of learning in this class will be through online delivery and flexible in-class discussion and support.
- The course is broken down into 7 Topics. Each Topic will have Readings, a Quiz, a Data Lab, and Homework.
- Videos are available for most topics, both within the reading and in the worked examples in the summary slides and resources. Students should use the videos and ask clarifying questions in the forum if they need additional help after reading the material.

Submitting Your Work

- You will be required to submit some or all of your work on all quizzes, exams, and homework. All work must be submitted using the Add Work Buttons in the assignments. See this video for quizzes and this one for general information. **No work for assignments will be accepted in paper form or as attachments in messages or email.** All work should be uploaded online. All work should be neat and follow all the guidelines provided in this course.

Course Structure:
This course has seven topics (see above for descriptions). Each topic has the following components.

1.   Reading and Checkpoint Assignments:

Reading
- o The official textbook is an interactive, online set of materials made up of several online reading assignments.
- o Read all of the material carefully and complete all of the "Learn by Doing" and "Did I Get This?" questions AS YOU READ. They are there to help you understand the ideas and prepare you for other assignments in the course. These count in the Reading category of the grade book.
- o Many of the problems in the reading assignments require that you work with a data set in StatCrunch. Most of those data sets can be found in the "Seattle Stats" [LINK] group located at the StatCrunch web site. If you do not see a data set listed there that you need, please post a message to the Forums so we can get it there for you. (Most of them are there, but just in case one is missing, please let us know.)
- o All Reading assignment points count (none are dropped). At the end of the quarter, your points for the Reading assignments will be divided by 95% of the total, effectively giving you a 5% bonus in this category.

Checkpoints:
- o Checkpoints are like reading quizzes. They are scattered throughout online text and also count towards your course grade.
- o Checkpoints focus mostly on concepts, rather than calculations.
- o You have THREE attempts per problem, and there is a substantial penalty for incorrect answers, so please be cautious when answering.
- o There may be multiple checkpoints per topic, so pay attention to that as well.
- o Unlike HW problems, these cannot be regenerated so be careful you have the correct answer entered before you submit them.
- o All Checkpoint assignments count. The Checkpoint category is combined with the Reading category. At the end of the quarter, your points for Reading and Checkpoints will be divided by 95% of the total, effectively giving you a small bonus in this category.

- o **You should work on checkpoints alone.**

2. HW Sets:
   - o For the majority of problems you will get several attempts per problem and will get full credit if you provide a correct answer on the first or second attempt. The only problems excluded from this are the one handwritten problem per HW which is graded by hand according to the handwritten question rubric.
   - o For the majority of problems you can immediately regenerate a new problem (with new numbers) and start over fresh with all attempts if you want to. To generate a new version of a problem, look for the "Try a similar problem" link when you click on a problem to regenerate a problem. You can continue to submit answers until the due date/time and MyOpenMath will record them in your MyOpenMath gradebook. You cannot regenerate the Statcrunch or handwritten problems.
   - o MyOpenMath will record your best score, even if you do extra problems for practice that you don't get correct. So, there is NO PENALTY for doing extra problems.
   - o The first few homework problems are Statcrunch skills problems which are non-regenerating. These problems have practice of the Statcrunch processes you will use in that assignment and during the rest of the quarter.
   - o In the last problem of most HW sets you are required to submit your neatly written work, demonstrating the processes and correct notation from the topic reading. These problems will be graded according to the following rubric. [Handwritten Question Grading Rubric] The Handwritten Questions are non-regenerating and must be graded by your instructor by hand. Your score will be zero until your instructor grades these problems.
   - o The total number of points on each homework set depends on the number of items in the set. However, all homework assignments and problems count (none are dropped). At the end of the quarter, your points for the MyOpenMath Homework will be divided by 95% of the total, effectively giving you a small bonus in this category. (For example, suppose there were 500 total points of homework and you earn 420 of them. At the end of the quarter, we will divide by 95% of 500, which is 475. So, to get your homework score, we will compute 420/475 = 88%, instead of 420/500 = 84%.)
   - o **You are encouraged to work on these with others, get help, and ask questions in the forums about these questions.**

3. DataLab:
   - o Each topic will have a Data Lab where you take a data set and apply the ideas from that topic to analyze the data.
   - o All Data Lab data sets can be found in the StatCrunch group called "Seattle Stats" [LINK].
   - o You can find links for the Data Labs on the calendar and in the Data Labs folder/block in MyOpenMath. You have four (4) attempts per problem. Correct answers on the 1st or 2nd attempt get full credit. After that, there is a 20% penalty.
   - o Be sure you read the Background to the Data Lab before you begin it.
   - o **You should work on these alone.** If you have clarifying questions, please post them to the Forums. Please do not post answers to these on the forums or anywhere else so that others can learn from them as they should.

4. Quiz:
   - o Each of the 7 topics will have a TIMED Quiz associated with it.
   - o You can take each Topic Quiz two (2) times. Your highest score counts.
   - o These are designed to help you see if you are really learning the material in the current topic and retaining the material from previous topics.

- o Each quiz will consist of 4 or 5 questions. 2 or 3 of them will be from the CURRENT topic and will be selected from the Topic Homework set. The remaining questions will be randomly drawn from PREVIOUS Topic Homework sets. Quizzes normally have a total of 50 points on each.
- o You will submit your quiz work for each quiz. Like a regular face to face class the expectation is you will write up your work as you take your quiz and submit it directly upon completion.
- o Quizzes are timed for 60 minutes so you can get used to taking timed assessments.
- o Late Passes can be used on Quizzes (see details below).
- o You should record your work and solving methods as you take the quiz. All work needs to be submitted during the quiz or immediately after you are done with the quiz.
- o All Quizzes count (none are dropped).
- o Do not start a quiz until AFTER you have completed the Topic's Reading and Homework assignments.
- o The password for quizzes is **ready4timedquiz**
- o **You should work on these alone.** If you have questions about how a question was scored, please contact your instructor in a private MyOpenMath message. To discuss your quiz you must have submitted your written work. Please do not post questions about these on the Forums since others may have not taken them when you post.

2. Exams:
- o There are 4 exams. 3 regular exams and a comprehensive final.
- o Your course exam grade is the average of your highest 3 exam scores.
- o You must take your exam within the scheduled 24 hour exam window on the MyOpenMath calendar.
- o Exam 1 covers Topics 1, 2 and 3.
- o Exam 2 covers Topics 4 and 5
- o Exam 3 covers Topics 6 and 7
- o Exam 4 covers Topics 1-7
- o These are online exams in MyOpenMath.
- o These exams require that you submit your neat work to receive credit for some exam questions. **If you do not submit your work with the Add Work button in the question your work will not be counted.**
- o Statcrunch is the required statistical software for the course. tool. Use of other software NOT allowed on the exams.
- o Desmos is the only allowed online calculator. You may use a hand held calculator if you prefer.
- o **You must work alone on exams.**
- o **Late Passes are not allowed.**

Instructor Response Policy:
- I will make a good faith effort to answer the question by the end (5PM) of the NEXT official business/class day. If I am unable to do this due to illness or other unanticipated emergency, we will make an effort to post this to the course announcements.
- On evenings (after 5pm), weekends, and holidays, I may not check into the site regularly, so please plan accordingly.

Required Materials:

In this course, you will need the following:
- Regular and reliable internet access – if you don't have this, please reconsider if this course is best for you.

- StatCrunch account (About $15[1]) – To gain access to StatCrunch, go to **http://www.statcrunch.com/get-access/** and sign up for 6 months of access (about $15 as of Nov, 2017). Be sure to look for the Student rate. Statcrunch is the only allowed technology tool for this course. Use of other software or using calculators to do statistical calculations is NOT allowed on the exams. It is important that once you subscribe, you join the Seattle Stats group at this link so you have access to all course data sets.
- MyOpenMath account (free) – see Canvas announcement for details on how to access.
- Any non-phone scientific calculator for quick calculations
- Loose leaf paper (not torn out of a spiral or notebook)
- Pencil and erasers **(please avoid using pen)**
- Binder or Notebook – Please keep all your scratch work organized in the binder; each page should be dated at the top and give you information about the problem (problem number, assignment title, etc.). We reserve the right to ask the class for a sample of your written work at any time.We do this to help YOU stay organized; in an online course, this is very useful.

Technology Requirements:

In this course, you will be expected to be able to do or have all of the following. If you do not already know how to do these, or are not confident you can learn how to do so easily, please consider if this course is appropriate for you at this time:

- Google Chrome is recommended - see this [LINK] for Accessibility Information
- Regularly log into course website
- Manage and remember multiple usernames and passwords
- Navigate different website interfaces
- Save pictures to your computer desktop.
- Upload pictures or other files from your computer to the course website.
- StatCrunch Account - see this [LINK] for Accessibility Information

Grading

- Most of your work in this course is "graded" by MyOpenMath and you get feedback right away.
- We will post estimates on when the Midterm and Final Grades will be graded in Announcements, and when they are done.
- If you think you have a correct answer to a Homework, Reading, or Data Lab assignment but were not given credit for it, use the "Post question to forum" link below that problem and ask a question on the Forum. Include a picture of your work or explain your reasoning to get a response from the instructor(s). Your instructor will reply per the official response policy.
- If you think you have a correct answer to a QUIZ assignment but were not given credit for it, send a private message to your Instructor. Include the Quiz number and the problem number so we can look at your submitted work to discuss it with you. Your instructor will reply per the official response policy.

Late Policy, Late Passes, and Make Up Work:

- One late pass extends the due date of one assignment 48 hours from the original due date.
- Only one late pass is allowed per assignment.
- Late Passes can be used on Online Homeworks, Reading Assignments and Checkpoints, Quizzes and DataLabs.
- Late passes CANNOT be used on exams.

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[1] Subject to change by publisher.

- Late passes SHOULD be used BEFORE the assignment deadline but may be used within the 48 hour window after the assignment is originally due.
  - For example if your assignment is due May 10 at 11:59 pm, and you apply a late pass on May 12 at 11 PM, you will have 59 minutes remaining to complete your assignment.
- Do not enter Review Mode if you want to extend your assignment. Use your Late pass first.
  - If you enter Review Mode on any assignment then you will no longer be able to use a late pass on that assignment.
  - There is a warning before you enter review mode so be sure to look for it.
- If you experience technical difficulty with late passes or assignments, or have some emergency, IMMEDIATELY contact the instructor via a private MyOpenMath message. Any delays in communication may impact any decision about extensions.
- If a student does not properly use a late pass in time, does not follow directions or guidelines, or causes the instructor to have to manually reset or extend a deadline, the instructor reserves the right to consider all information available and decide whether or not an extension is warranted. If an extension is granted, the entire assignment may have to be cleared and all problems redone. If an extension is granted, a late pass will be deducted from your account and a penalty of up to 25% may be assessed depending on the circumstances. Some assignments (like reading assignments and checkpoints) do not have randomized questions, so extensions may not be granted at all.
- Requests to make up work or to complete "extra credit" at the end of the course because the student has not earned the grade they want will not be considered. Any exception would require making similar opportunities available for ALL students. A grade is something that is built throughout the quarter, not "fixed" at the end.

Statistical Calculations:
- This course will require a significant amount of data analysis and calculations.
- We have chosen StatCrunch, an online tool that is both inexpensive AND powerful.
- Statcrunch is the only allowed statistics technology tool for this course. Use of other software or using calculators to do statistical calculations is NOT allowed on the exams.
- The first few problems on each homework set will guide you through how to use new StatCrunch tools for problems on that assignment.
- We have created a "Seattle Stats" [LINK] group there where we have and will place data files that we will need for this course. You need to join this group to access many of the course data sets: **http://www.statcrunch.com/5.0/group.php?groupid=2407**
- For accessibility support with StatCrunch, please see this [LINK] at Pearson, the publisher of this software.

Work Notebook:
- You are HIGHLY encouraged to keep a dedicated notebook for all work you do in Readings, Checkpoints, HW, Quizzes, Data Labs. Label and date each page with assignments and problem numbers.
- Record calculations, commands, and steps you take so that (a) you have it later to study for the exams and (b) you can upload a picture of your work to the Forums or Messages should you have a question about a problem.

Calendar/Schedule:
- All due dates will be posted on MyOpenMath.org. Please check the calendar daily to make sure you know when due dates are coming.
- It is YOUR responsibility to know the due dates by checking the MyOpenMath calendar.
- Most due dates are 11:59 pm SEATTLE time. Please make sure your computer settings for your date and time are set to Seattle time. If you do not do so, your MyOpenMath calendar may display due dates that are misleading. If you travel out of the time zone, be sure to use your MyOpenMath settings to at least temporarily display the Pacific Time Zone on the MyOpenMath calendar so that your due dates appear correctly to you.

Getting Help:
- Your best options for getting help on content or homework problems in the course is to post a question on the MyOpenMath forum.
- **Guidelines for Posting to the Forum:**
  - At the bottom of most MyOpenMath Problems, you will see a link that allows you to post a question about that problem to a Forum. That link will say "Post this question to forum." Please USE THAT LINK – it copies your version of the problem into the post, automatically fills out your subject line, and alerts you if someone else has already posted on that problem.

  - Write in complete sentences. Don't use symbols or shortcuts. Examples of this include using "r" and "n" and "u" to replace normal communication. Consider all posts "professional communication."

  - Be sure to include a specific and clear question you want answered. Don't just say "Help!" or "I don't understand" or "I have no idea where to start." You are expected to take the time and effort to organize your thoughts and articulate your specific question. This may include rereading the content section to better understand what you know and don't know. Any post without a specific detailed question will be redirected back to the student for further clarification.

  - Include a clear explanation of what you have done so far. This can include a typed up sample of your work or, if you prefer, you can upload a neat, clear picture of your work. Please don't just post your answer. We have no way of helping with that information.

  - Be respectful and courteous to others. Although it should not have to be said, do not post any private information about any other person, including any correspondence between you and another person (including instructors) without their prior permission.

  - Think twice before posting out of frustration or anger. Though a rare occurrence, these sorts of posts don't help you get your question answered and they can pollute the tenor of our online discourse.

  - The instructors reserve the right to moderate the forums and to remove any post that is, in their judgement, offensive, illegal, or otherwise inappropriate.

- o When you post a question to the forum, please be patient. All responses will follow our official response policy.

- o **NOTE: Please do not send questions about content or homework problems via email or MyOpenMath messages. Those only go to the instructor** and will not allow students in the course to see your question and any responses. This will ensure that questions in the course can be efficiently addressed. This also creates a shared body of knowledge in our class. If you do forget and send us a private message or email about content or a homework problem, we might ask you to post it to the forum BEFORE we respond. Of course, if you have questions that are of a more private nature (grade issues, personal matters, etc), please do not hesitate to do so with a private email or MyOpenMath message.

- o A more thorough discussion of the Guidelines on Forum Posts can be found here: [LINK].

Academic Honor Code:

Consistent with Washington law, no credit will be given for work that is the product of cheating, plagiarism, or other dishonesty. The instructor reserves the right to notify his/her dean, with supporting documentation, of any suspected incidents of academic dishonesty. The dean shall then help determine whether to refer the matter to the vice president for student services for possible disciplinary action. A student who has received a grade adjustment by the instructor on the basis of dishonesty may grieve that adjustment under the student complaint procedure. However, any disciplinary sanction that is imposed instead of or in addition to an instructor's grade adjustment may be imposed and reviewed only under the student disciplinary procedure. Examples of cheating and plagiarism include, but are not limited to

- Copying work from other students and presenting it as your own
- Allowing others to copy from your work and present it as their own
- Working on assignments with others on which you are asked to work alone
- Violating the rules of exams, quizzes, or other assignments as given by the instructor
- Using resources (websites, technology, notes, other people, etc) that are not allowed.
- Getting help on exams or assignments (in any form) when you were required to work alone.

See WAC132-121-120

Academic Resources

- Library and Learning Commons (http://www.seattleu.edu/learningcommons/) (This includes: Learning Assistance Programs, Research [Library] Services, Writing Center, Math Lab)
- Academic Integrity Tutorial (found on Canvas and SU Online)

Academic Policies on Registrar website

(https://www.seattleu.edu/registrar/academics/performance/)

- Academic Integrity Policy
- Academic Grading Grievance Policy

Support for Students with Disabilities

If you have, or think you may have, a disability (including an "invisible disability" such as a learning disability, a chronic health problem, or a mental health condition) that interferes with your performance as a student in this class, but have not yet arranged support services and/or

accommodations, I encourage you to do so through Disability Services staff at DS@seattleu.edu or (206) 296-5740. Disability-based adjustments to course expectations can be arranged only through this process.

Notice Regarding Religious Accommodations

It is the policy of Seattle University to reasonably accommodate students who, due to the observance of religious holidays, expect to be absent or endure a significant hardship during certain days of their academic course or program. Please see, Policy on Religious Accommodations for Students (https://www.seattleu.edu/media/policies/Policy-on-Religious-Accommodations-for-Students---FINAL.pdf)."

Office of Institutional Equity

Title IX of the Education Amendments of 1972 (Title IX) prohibits discrimination based on sex in educational programs or activities that receive Federal financial assistance. This prohibition includes sexual misconduct, which encompasses sexual harassment and sexual violence. Seattle U remains committed to providing a safe and equitable learning, living, and working environment. Seattle U offers emergency, medical, and other support resources, as well as assistance with safety and support measures, to community members who have experienced or been impacted by sexual misconduct.

Seattle U requires all faculty and staff to notify the University's Title IX Coordinator if they become aware of any incident of sexual misconduct experienced by a student.

For more information, please visit https://www.seattleu.edu/equity/.If you have any questions or concerns, you may also directly contact the Title IX Coordinator in the Office of Institutional Equity (email: oie@seattleu.edu; phone: 206.296.2824).

Disclaimer: The instructor reserves the right to make reasonable changes to this syllabus during the quarter provided it is done so in writing and is made available to students with advanced notice.