Term Information

Effective Term	Spring 2022
Previous Value	*Summer 2021*

Course Change Information

What change is being proposed? (If more than one, what changes are being proposed?)

To allow for 100% online.

What is the rationale for the proposed change(s)?

To allow for 100% online.

What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

None.

Is approval of the request contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

General Information

Course Bulletin Listing/Subject Area	Statistics
Fiscal Unit/Academic Org	Statistics - D0694
College/Academic Group	Arts and Sciences
Level/Career	Undergraduate
Course Number/Catalog	4302
Course Title	Computational Statistics
Transcript Abbreviation	Comp Stat
Course Description	Topics in computational statistics using the R software, including design and execution of classical and modern Monte Carlo experiments, and statistical inference based on resampling methods, such as bootstrap, jackknife, and permutation.
Semester Credit Hours/Units	Fixed: 3

Offering Information

Length Of Course	14 Week
Flexibly Scheduled Course	Never
Does any section of this course have a distance education component?	Yes
Is any section of the course offered	100% at a distance
Previous Value	*No*
Grading Basis	Letter Grade
Repeatable	No
Course Components	Lecture
Grade Roster Component	Lecture
Credit Available by Exam	No
Admission Condition Course	No
Off Campus	Never
Campus of Offering	Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites	Prereq: 3301 and 4301, or permission of instructor.
Exclusions	
Electronically Enforced	Yes

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code	27.0501
Subsidy Level	Baccalaureate Course
Intended Rank	Junior, Senior

Requirement/Elective Designation

Required for this unit's degrees, majors, and/or minors

Course Details

Course goals or learning objectives/outcomes	• Import data sets of various formats into R.
	• Design and perform simple Monte Carlo experiments.
	• Use resampling methods to carry out statistical inference.
	• Produce numerical and graphical summaries of data and their analysis.
	• Communicate findings through written reports and online tools.
Content Topic List	• Introduction to statistical analyses in the R software
	• Data manipulation in R
	• Simulation of random variables
	• Monte Carlo methods
	• Bootstrap, jackknife, and permutation tests
	• Analysis of dependent observations
	• Numerical methods in R
Sought Concurrence	No

Attachments

• STAT4302_Syllabus_distance.docx: Distance Syllabus

  (Syllabus. Owner: Craigmile,Peter F)

• STAT4302_distance_approval_cover_sheet.docx: ASC distance learning review

  (Other Supporting Documentation. Owner: Craigmile,Peter F)

• STAT4302_in_person.pdf: In-person Syllabus

  (Syllabus. Owner: Craigmile,Peter F)

Last Updated: Vankeerbergen,Bernadette
Chantal
08/29/2021

Comments

- The course has never actually been offered in person. The in-person syllabus is a copy of the syllabus used to approve the course back in September 2017 - the pre-requisites for the course were updated in November 2020. *(by Craigmile,Peter F on 08/16/2021 11:10 AM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Craigmile,Peter F	06/29/2021 10:47 AM	Submitted for Approval
Approved	Craigmile,Peter F	08/16/2021 11:10 AM	Unit Approval
Approved	Vankeerbergen,Bernadette Chantal	08/29/2021 11:28 AM	College Approval
Pending Approval	Cody,Emily Kathryn Jenkins,Mary Ellen Bigler Hanlin,Deborah Kay Hilty,Michael Vankeerbergen,Bernadette Chantal Steele,Rachel Lea	08/29/2021 11:28 AM	ASCCAO Approval

THE OHIO STATE UNIVERSITY

STAT 4302
Computational Statistics
Spring 2022
3 credit hours
Online

COURSE OVERVIEW

Instructor

Instructor: Peter F. Craigmile

Email address: pfc@stat.osu.edu (preferred contact method)

Office hours: Virtual Hours via Carmen Zoom: TO BE ANNOUNCED

Prerequisites

Stat 3301 and 4301 or permission of the instructor.

Course description

This course covers a number of topics in the area of computational statistics, using the R statistical software package. Students will use their knowledge in theoretical and applied statistics to design and perform classical and modern Monte Carlo experiments. The students will also be exposed to statistical inference based on resampling methods (bootstrap, jackknife and permutation tests).

Throughout the course students will be working with modern data sets, including but not limited to: spatio-temporal data, social network data, and experimental data. Students will get exposure to retrieving data from online repositories as well as collecting their own. The course will put emphasis on effective and efficient functional programming techniques which will be taught throughout the course via tutorials and examples. Students will also gain experience in communicating their findings.

Course learning outcomes

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

1. Import data sets of various formats into R.
2. Design and perform simple Monte Carlo experiments.
3. Use resampling methods to carry out statistical inference.
4. Produce numerical and graphical summaries of their analysis.
5. Communicate findings through written reports and online tools.

HOW THIS ONLINE COURSE WORKS

Mode of delivery: This course is 100% online. For the Spring 2022 offering, the course will be taught fully online, and no in-person meetings will take place. Each week, multiple videos and materials to study will be posted on the course website. You will be responsible for watching the videos, studying the new material and working through the examples presented in the videos or assigned as an exercise. There will be approximately 165 minutes of content per week. Also, homework assignments, quizzes, and readings will be posted on the class website. You will be given ample time to complete the assignments.

The instructor will hold weekly office hours via CarmenZoom. The times are given above.

Credit hours and work expectations: This is a **3-credit-hour course**. According to Ohio State policy (go.osu.edu/credithours), students should expect around 3 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of (C) average.

Attendance and participation requirements: Because this is an online course, your attendance is based on your online activity and participation. The following is a summary of students' expected participation:

- **Participating in online activities for attendance**: **AT LEAST THREE TIMES PER WEEK**
  You are expected to log in to the course in Carmen every week. (During most weeks you will probably log in many times.) If you have a situation that might cause you to miss an entire week of class, discuss it with me *as soon as possible.*
- **Office hours and live sessions**: **OPTIONAL**
  All live, scheduled events for the course, including my office hours, are optional.

COURSE MATERIALS AND TECHNOLOGIES

Textbooks

Required

- Maria L. Rizzo (2007), Statistical Computing with R, CRC Press, Boca Raton, FL. I will use the first edition for this book, which is available online from the OSU library at https://library.ohio-state.edu/record=b8340199

Course technology

Technology support

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at ocio.osu.edu/help/hours, and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** ocio.osu.edu/help
- **Phone:** 614-688-4357(HELP)
- **Email:** servicedesk@osu.edu
- **TDD:** 614-688-8743

Technology skills needed for this course

- Basic computer and web-browsing skills
- Navigating Carmen (go.osu.edu/canvasstudent)
- CarmenZoom virtual meetings (go.osu.edu/zoom-meetings)
- Recording a slide presentation with audio narration (go.osu.edu/video-assignment-guide)
- Recording, editing, and uploading video (go.osu.edu/video-assignment-guide)

Required equipment

- Computer: current Mac (Mac OS) or PC (Windows 10) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed and tested
- Microphone: built-in laptop or tablet mic or external microphone
- Other: a mobile device (smartphone or tablet) to use for BuckeyePass authentication

Required software

- This class requires you to use the statistical software package called R (The R Project for Statistical Computing; http://www.r-project.org/). This software package is available as Free Software.
  - You can download R for Windows, Mac, and Linux, from the CRAN archive at https://cran.r-project.org.

- An in-depth introduction to R is available at http://cran.r-project.org/doc/manuals/R-intro.pdf
  - Hands-on tutorials are available in the Swirl system, which you can learn about at http://swirlstats.com/. In particular, "R Programming: The basics of programming in R" is an appropriate first tutorial for students who have never used R.
- Students will be required to use RStudio software. RStudio can be downloaded for free at https://www.rstudio.com/. Before downloading RStudio, you must also download and install R first. You are expected to install R and RStudio on your personal computer by downloading the software from the links above.
- More details will be given in live or recorded lectures and on the class web site.

Carmen access

You will need to use BuckeyePass (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:
- Register multiple devices in case something happens to your primary device. Visit the BuckeyePass - Adding a Device help article for step-by-step instructions (go.osu.edu/add-device).
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the Duo Mobile application (go.osu.edu/install-duo) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357(HELP) and IT support staff will work out a solution with you.

GRADING AND FACULTY RESPONSE

How your grade is calculated

ASSIGNMENT CATEGORY	PERCENTAGE
Quizzes	10
Homework	25
Midterm 1	20

Midterm 2	20
Final exam	25
Total	**100**

Grades will be recorded on the class website.

Quizzes are meant to assess basic understanding of the recorded lecture content and should be completed after viewing posted video lectures.

Homework will be assigned most weeks during the semester. Typically, no late homework will be accepted. However, if you are unable to complete an assignment on time, please get in touch with me as soon as possible so we can discuss your situation. You are encouraged to work together on the homework, but do not copy any part of a homework. Each student must produce his/her own homework to be handed in. All homework must be submitted online as a PDF file through the class website. Feel free to ask me for help after you have made an attempt of the questions.

The grader for the course does not have the time to provide detailed explanations on each question that is graded. To make up for this, I will endeavor to create homework solutions that are detailed enough to allow you to understand how the question could be approached.

Homework preparation rules: Put your name and the homework assignment number on the top right-hand corner of every page. Submit the problems in order, making sure that the computer output and discussion is placed together (do not put the computer output at the end of homework). Make it clear what parts of the output are relevant and show how they answer the questions posed in the homework.

Exams: There will be three take-home exams:

Midterm 1	During part of Week 6
Midterm 2	During part of Week 11
Take-home Final	Will be handed out in Week 15, and due in exam week

All take home exams will be in the format of a small statistical project. You will be asked to write a report which must be word-processed and you may be asked to include numerical and graphical summaries of your analyses as well as your computer code. Further details will be given in class and posted on the class website.

Late assignments

Late submissions will not be accepted. Please refer to Carmen for due dates.

feedback and response time

I am providing the following list to give you an idea of my intended availability throughout the course. (Remember that you can call **614-688-4357(HELP)** at any time if you have a technical problem.)

- **Grading and feedback:** For large weekly assignments, you can generally expect feedback within **7-10 days**.

- **If you have any questions about your graded assignments or exams, please send me an email – PLEASE DO NOT USE CARMEN.**

- **Email:** I will reply to e-mails within 24 hours on school days.

OTHER COURSE POLICIES

Discussion and communication guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style**: While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation. A more conversational tone is fine for non-academic topics.
- **Tone and civility**: Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online.
- **Citing your sources**: When we have academic discussions, please cite your sources to back up what you say. For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.
- **Backing up your work**: Consider composing your academic posts in a text editor or word processor, where you can save your work, and then copying into the Carmen discussion.

Academic integrity policy

Policies for this online course

- **Exams**: You must complete the midterms and final exam yourself, without any external help or communication.
- **Written assignments**: Your written assignments, including discussion posts, should be your own original work.

- **Reusing past work**: In general, you are prohibited in university courses from turning in work from a past class to your current class, even if you modify it. If you want to build on past research or revisit a topic you've explored in previous courses, please discuss the situation with me.
- **Falsifying research or results**: All research you will conduct in this course is intended to be a learning experience; you should never feel tempted to make your results or your library research look more successful than it was.
- **Collaboration and informal peer-review**: The course will include opportunities for formal collaboration with your classmates. While study groups are encouraged, remember that comparing answers on a quiz or assignment is not permitted. If you're unsure about a particular situation, please feel free just to ask ahead of time.

Ohio State's academic integrity policy

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct **http://studentlife.osu.edu/csc/**.

If I suspect that a student has committed academic misconduct in this course, I am obligated by university rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the university's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university.
If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.
Other sources of information on academic misconduct (integrity) to which you can refer include:

- Committee on Academic Misconduct web page (go.osu.edu/coam)
- Ten Suggestions for Preserving Academic Integrity (go.osu.edu/ten-suggestions)

Student Services and Advising

University Student Services can be accessed through BuckeyeLink. More information is available here: https://contactbuckeyelink.osu.edu/

Advising resources for students are available here: http://advising.osu.edu

Copyright for instructional materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Statement on Title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at http://titleix.osu.edu or by contacting the Ohio State Title IX Coordinator at titleix@osu.edu

Commitment to a diverse and inclusive learning environment

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

Land Acknowledgement

We would like to acknowledge the land that The Ohio State University occupies is the ancestral and contemporary territory of the Shawnee, Potawatomi, Delaware, Miami, Peoria, Seneca, Wyandotte, Ojibwe and Cherokee peoples. Specifically, the university resides on land ceded in the 1795 Treaty of Greeneville and the forced removal of tribes through the Indian Removal Act of 1830. I/We want to honor the resiliency of these tribal nations and recognize the historical contexts that has and continues to affect the Indigenous peoples of this land.

More information on OSU's land acknowledgement can be found here: https://mcc.osu.edu/about-us/land-acknowledgement

Your mental health

As a student you may experience a range of issues that can cause barriers to learn, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty

concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. No matter where you are engaged in distance learning, The Ohio State University's Student Life Counseling and Consultation Service (CCS) is here to support you. If you find yourself feeling isolated, anxious or overwhelmed, on-demand resources are available at go.osu.edu/ccsondemand. You can reach an on-call counselor when CCS is closed at 614-292-5766, and 24-hour emergency help is also available through the 24/7 National Prevention Hotline at 1-800-273-TALK or at suicidepreventionlifeline.org. The Ohio State Wellness app is also a great resource available at go.osu.edu/wellnessapp.

ACCESSIBILITY ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Requesting accommodations

The university strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability including mental health, chronic or temporary medical conditions, please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. **SLDS contact information:** slds@osu.edu; 614-292-3307; 098 Baker Hall, 113 W. 12th Avenue.

Accessibility of course technology

This online course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- Canvas accessibility (go.osu.edu/canvas-accessibility)
- Streaming audio and video
- CarmenZoom accessibility (go.osu.edu/zoom-accessibility)
- Collaborative course tools

COURSE SCHEDULE

Refer to the Carmen course for up-to-date assignment due dates.

Week	Dates	Topics
1	Beginning Jan 10	Introduction to R
2	Beginning Jan 17	**(No class on Jan 17)** Working with Data in R
3	Beginning Jan 24	Working with Data in R
4	Beginning Jan 31	Working with Data in R Methods for Simulating Random Variables
5	Beginning Feb 7	Methods for Simulating Random Variables
6	Beginning Feb 14	**Midterm 1** Methods for Simulating Random Variables
7	Beginning Feb 21	Monte Carlo Methods
8	Beginning Feb 28	Monte Carlo Methods
9	Beginning Mar 7	Bootstrap & Jackknife, Permutation tests
	Beginning Mar 14	**(Spring break)**
10	Beginning Mar 21	Bootstrap & Jackknife, Permutation tests
11	Beginning Mar 28	**Midterm 2** Statistical Inference with Dependent Data
12	Beginning Apr 4	Statistical Inference with Dependent Data
13	Beginning Apr 11	Statistical Inference with Dependent Data
14	Beginning Apr 18	Numerical Methods in R

Syllabus for Stat 4302: Computational Statistics

Instructor:
Office:
Office Hours:
Office Phone:
E-mail:

Format: Three credit hours; three 55-minute in-class meetings per week

Prerequisites: Stat 4301 or permission of the instructor

Required Text: *Statistical Computing with R,* Maria L. Rizzo, CRC Press.

Course Description and Learning Outcomes: This course covers a number of topics in the area of computational statistics, using the statistical software R. Students will use their knownledge in theoretical and applied statistics to design and perform classical and modern Monte Carlo experiments. The students will also be exposed to statistical inference based on resampling methods (bootstrap, jackknife and permutation tests).

Upon successful completion of the course, students will be able to

1. Import data sets of various formats into R.

2. Design and perform simple Monte Carlo experiments.

3. Use resampling methods to carry out statistical inference.

4. Produce numerical and graphical summaries of their analysis.

5. Communicate findings through written reports and online tools.

Homework: Homework problems will be assigned and graded weekly.

Exams: There will be two take-home exams: a midterm and a final, both in the format of a small statistical application project. You will be asked to write a report which must be word-processed, and must include numerical and graphical summaries of your analyses as well as your computer code.

Final Grade:
The final course grade will be based on the following weighting of assessment components:

Homework – 30%
Midterm – 30%
Final exam – 40%

Tentative Course Schedule:

Weeks	Topic	Suggested subtopics
1	Introduction to R	R programming environment, R Studio, R Markdown
2, 3	Working with Data in R	data summarization, data types and representation, data visualization
4, 5	Methods for Simulating Random Variables	inverse transform, accept-reject methods, importance sampling, etc.
6, 7	Monte Carlo Methods	Monte Carlo integration, variance reduction, Monte Carlo hypothesis testing
8, 9	Bootstrap & Jackknife, Permutation tests	Bootstrap, jackknife, permutation tests
10, 11, 12	Statistical Inference with Dependent Observations	Dependent observations (time series, spatial data), statistical inference via simulation of dependent variates (simulation of random fields, Gibbs sampling, Metropolis-Hastings algorithms)
13, 14	Numerical Methods in R	Root finding, Newton-Raphson, optimization, EM algorithm, smoothing, etc.

Throughout the course students will be working with modern and complex data sets, including but not limited to: spatio-temporal data, social network data, experimental data. Students will get exposure to retrieving data from on-line repositories (i.e., weather data centers) as well as collecting their own data (i.e., scraping websites). The course will put emphasis on effective and efficient functional programming techniques which will be taught throughout the course via tutorials and examples.

Academic Misconduct: It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct `http://studentlife.osu.edu/csc/`.

Special Accommodations:
Students with disabilities (including mental health, chronic or temporary medical conditions) that have been certified by the Office of Student Life Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office of Student Life Disability Services is located in 098 Baker Hall, 113 W. 12th Avenue; telephone 614-292-3307, slds@osu.edu; `slds.osu.edu`.

Distance Approval Cover Sheet

For Permanent DL/DH Approval | College of Arts and Sciences

Course Number and Title: STAT 4302:

Carmen Use

Please consider using ASC's distance learning course template. For more on use of Carmen: https://teaching.resources.osu.edu/teaching-topics/carmen-common-sense-best-practices

A Carmen site will be created for the course, including a syllabus and gradebook at minimum. YES   If no:

Syllabus

Proposed syllabus uses the ASC distance learning syllabus template, includes boilerplate language where required, as well as a clear description of the technical and academic support services offered, and how learners can obtain them. YES   Syllabus is consistent and is easy to understand from the student perspective. YES   Syllabus includes a schedule with dates and/or a description of what constitutes the beginning an end of a week or module. YES   If there are required synchronous sessions, the syllabus clearly states when they will happen and how to access them. N/A   Additional comments (optional):

Instructor Presence

For more on instructor presence: https://teaching.resources.osu.edu/teaching-topics/online-instructor-presence

Students should have opportunities for regular and substantive academic interactions with the course instructor. Some ways to achieve this objective: **X** Regular instructor communications with the class via announcements or weekly check-ins   **X** Instructional content, such as video, audio, or interactive lessons, that is visibly created or mediated by the instructor   ☐ Regular participation in class discussion, such as in Carmen discussions or synchronous sessions   **X** Regular opportunities for students to receive personal instructor feedback on assignments

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Please comment on this dimension of the proposed course (or select/explain methods above):
Quizzes are meant to assess basic understanding of the recorded lecture content and should be completed after viewing posted video lectures. Homework will be assigned most weeks during the semester. Optional office hour are live.

Delivery Well-Suited to DL/DH Environment

Technology questions adapted from the Quality Matters rubric. For information about Ohio State learning technologies: https://teaching.resources.osu.edu/toolsets

The tools used in the course support the learning outcomes and competencies. YES

Course tools promote learner engagement and active learning. YES

Technologies required in the course are current and readily obtainable. YES

Links are provided to privacy policies for all external tools required in the course. YES

Additional technology comments:
his class requires you to use the statistical software package called R (The R Project for Statistical Computing; http://www.r-project.org/). This software package is available as Free Software.

Which components of this course are planned for synchronous delivery and which for asynchronous delivery? (For DH, address what is planned for in-person meetings as well.)
All asynchronous.

If you believe further explanation would be helpful, please comment on how course activities have been adjusted for distance learning:
Activities each week have been adjusted to allow students to learn more for themselves. Quizzes have been added to the online course to aid in understanding the material.

Workload Estimation

For more information about calculating online instruction time: ODEE Credit Hour Estimation

Course credit hours align with estimated average weekly time to complete the course successfully. YES

Course includes direct (equivalent of "in-class") and indirect (equivalent of "out-of-class") instruction at a ratio of about 1:2. YES

Provide a brief outline of a typical course week, categorizing course activities and estimating the approximate time to complete them or participate: **There will be approximately 165 minutes of content per week**

In the case of course delivery change requests, the course demonstrates comparable rigor in meeting course learning outcomes. YES

Accessibility

For more information or a further conversation, contact the accessibility coordinator for the College of Arts and Sciences. For tools and training on accessibility: Digital Accessibility Services

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Instructor(s) teaching the course will have taken Digital Accessibility training (starting in 2022) and will ensure all course materials and activities meet requirements for diverse learners, including alternate means of accessing course materials when appropriate. YES (Took training from ODEE previously)

Information is provided about the accessibility of all technologies required in the course. All third-party tools (tools without campus-wide license agreements) have their accessibility statements included. YES

Description of any anticipated accommodation requests and how they have been/will be addressed.

Additional comments:

Academic Integrity

For more information: https://go.osu.edu/teaching-resources-academic-integrity

The course syllabus includes online-specific policies about academic integrity, including specific parameters for each major assignment: YES

Assignments are designed to deter cheating and plagiarism and/or course technologies such as online proctoring or plagiarism check or other strategies are in place to deter cheating: YES

Additional comments:

Frequent, Varied Assignments/Assessments

For more information: https://teaching.resources.osu.edu/teaching-topics/designing-assessments-student

Student success in online courses is maximized when there are frequent, varied learning activities. Possible approaches:

X Opportunities for students to receive course information through a variety of different sources, including indirect sources, such as textbooks and lectures, and direct sources, such as scholarly resources and field observation

X Variety of assignment formats to provide students with multiple means of demonstrating learning

X Opportunities for students to apply course knowledge and skills to authentic, real-world tasks in assignments

Comment briefly on the frequency and variety of assignment types and assessment approaches used in this course (or select methods above):
Quizzes and assignments vary in the type of concepts covered. Material varies between computational, theoretical statistics, and applied problems.

Community Building

For more information: https://teaching.resources.osu.edu/teaching-topics/student-interaction-online

Students engage more fully in courses when they have an opportunity to interact with their peers and feel they are part of a community of learners. Possible approaches:

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☐ Opportunities for students to interact academically with classmates through regular class discussion or group assignments

☐ Opportunities for students to interact socially with classmates, such as through video conference sessions or a course Q&A forum

X Attention is paid to other ways to minimize transactional distance (psychological and communicative gaps between students and their peers, instructor, course content, and institution)

Please comment on this dimension of the proposed course (or select methods above):
Students have plenty of opportunities to interact on the class website and with the instructor.

Transparency and Metacognitive Explanations

For more information: https://teaching.resources.osu.edu/teaching-topics/supporting-student-learning-your

Students have successful, meaningful experiences when they understand how the components of a course connect together, when they have guidance on how to study, and when they are encouraged to take ownership of their learning. Possible approaches:

X Instructor explanations about the learning goals and overall design or organization of the course

X Context or rationale to explain the purpose and relevance of major tasks and assignments

X Guidance or resources for ancillary skills necessary to complete assignments, such as conducting library research or using technology tools

☐ Opportunities for students to take ownership or leadership in their learning, such as by choosing topics of interest for an assignment or leading a group discussion or meeting

☐ Opportunities for students to reflect on their learning process, including their goals, study strategies, and progress

X Opportunities for students to provide feedback on the course

Please comment on this dimension of the proposed course (or select methods above):
Details are given in description of homework problems and quizzes. Feedback on learning concepts are given in the project-based exams. Feedback is collected from students in week 5 of the course.

Additional Considerations

Comment on any other aspects of the online delivery not addressed above:

The course syllabus is clear and contains all required syllabus elements. Additionally, the course design promotes student interaction to facilitate a community of learners.

Syllabus and cover sheet reviewed by Jeremie Smith on 8/16/2021

Additional resources and examples can be found on ASC's Office of Distance Education website.

THE OHIO STATE UNIVERSITY