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## Term Information

Effective Term Autumn 2024

## General Information

Course Bulletin Listing/Subject Area Statistics  
Fiscal Unit/Academic Org Statistics - D0694  
College/Academic Group Arts and Sciences  
Level/Career Graduate, Undergraduate  
Course Number/Catalog 5731  
Course Title Introduction to R for Data Science I: Basic R  
Transcript Abbreviation Basic R  
Course Description The first course in a sequence designed for teaching students how to use R effectively for doing data science. This course introduces the basic flow and focuses on basic usage of important tools in R for visualization, transformation, and organization of data.  
Semester Credit Hours/Units Fixed: 1

## Offering Information

Length Of Course 7 Week, 6 Week, 4 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  
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 1350, 1350.01, 1350.02, 1430, 1430.01, 1430.02, 1450, 1450.01, 1450.02, 1550, 2450, 2450.01, 2450.02, 2480, 2480.01, 2480.02, 3201, 3202, 3450, 3450.01, 3450.02, 3460, 3470, 3470.01, 3470.02, 4202, 5301, or 5302, or equiv., or graduate standing, or permission of instructor.  
Exclusions Not open to students with credit for STAT 5730  
Electronically Enforced Yes

## Cross-Listings

Cross-Listings

## Subject/CIP Code

Subject/CIP Code 27.0501  
Subsidy Level Doctoral Course

**Intended Rank**

Junior, Senior, Masters, Doctoral

## Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

## Course Details

### **Course goals or learning objectives/outcomes**

- Produce basic visualizations of data in R using the ggplot2 package.
- Transform and summarize data in R for generating insights.
- Organize data in R in such a way that makes it easily amenable to visualization and analysis.
- Import data in various tabular formats into R.
- Organize code, data, and analyses into scripts and projects.
- Author dynamic, reproducible documents that combine code, results, and prose with Quarto.

### **Content Topic List**

- Introduction to R, RStudio and very basic Quarto
  - Basic visualization with ggplot2
  - Data transformation and summarization
  - Good coding style and data tidying
  - Scripts and projects
  - Data import
  - Getting help
  - From data to analysis to final product with Quarto
- No

### **Sought Concurrence**

## Attachments

- STAT5731\_asc-distance-approval-cover-sheet-signed.pdf: distance approval cover sheet  
*(Other Supporting Documentation. Owner: Lee, Yoonkyung)*
- Restructuring\_5730.pdf: rationale for restructuring 5730  
*(Cover Letter. Owner: Lee, Yoonkyung)*
- STAT5731\_Rationale.pdf: rationale for 5731  
*(Cover Letter. Owner: Lee, Yoonkyung)*
- concurrence CSE\_2019.pdf: CSE concurrence  
*(Concurrence. Owner: Lee, Yoonkyung)*
- STAT5731\_syllabus\_v2.pdf: syllabus  
*(Syllabus. Owner: Lee, Yoonkyung)*

## Comments

- \* We have revised the syllabus per NMS Subcommittee feedback.  
\* We have added 1430, 1430.01, 1430.02 to prerequisite list, which were accidentally left out in the initial course request. *(by Lee, Yoonkyung on 04/11/2024 06:06 PM)*
- Please see NMS Subcommittee feedback email sent 3/28/24. *(by Neff, Jennifer on 03/28/2024 04:51 PM)*

**COURSE REQUEST**  
5731 - Status: PENDING

Last Updated: Vankeerbergen, Bernadette  
Chantal  
04/11/2024

**Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Lee, Yoonkyung	02/25/2024 06:33 PM	Submitted for Approval
Approved	Lee, Yoonkyung	02/25/2024 06:33 PM	Unit Approval
Approved	Vankeerbergen, Bernadette Chantal	03/07/2024 05:15 PM	College Approval
Revision Requested	Neff, Jennifer	03/28/2024 04:51 PM	ASCCAO Approval
Submitted	Lee, Yoonkyung	04/11/2024 06:09 PM	Submitted for Approval
Approved	Lee, Yoonkyung	04/11/2024 06:09 PM	Unit Approval
Approved	Vankeerbergen, Bernadette Chantal	04/11/2024 08:34 PM	College Approval
Pending Approval	Jenkins, Mary Ellen Bigler Hanlin, Deborah Kay Hilty, Michael Neff, Jennifer Vankeerbergen, Bernadette Chantal Steele, Rachel Lea	04/11/2024 08:34 PM	ASCCAO Approval

# Statistics 5731: Introduction to R for Data Science I: Basic R

## Rationale

R is an important software tool in statistics and data science, and being able to use R is almost a necessary skill for performing any sort of complex data analysis. This course is part one of a trio of courses that will cover basic usage, intermediate usage, and advanced visualization. The purpose of this course is to get students familiarized with R and to understand how to use R in a basic workflow for data science that includes importing, visualizing, transforming, and summarizing data, and communicating the results of the analysis with dynamic and reproducible documents. The skills that students learn in this course will become immediately applicable to other courses in Statistics that involve real data analysis.

## Course objectives and/or student learning outcomes

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

- Produce basic visualizations of data in R using the *ggplot2* package
- Transform and summarize data in R for generating insights
- Organize (i.e. tidy) data in R in such a way that makes it easily amenable to visualization and analysis
- Import data in various tabular formats into R
- Organize code, data, and analyses into scripts and projects
- Author dynamic, reproducible documents that combine code, results, and prose with *Quarto*



# Syllabus

## STAT 5731

Introduction to R for Data Science I: Basic R

Autumn 2024

1 Credit Hours

Online

## Course overview

### Instructor

- Name
- E-mail address
- Office Hours on Zoom:
  - Complete schedule and meeting links in Carmen

**Note:** My preferred method of contact is email.

### Course description

R is a freely available statistical computing environment and programming language. It has become a dominant workhorse for modern statistical research and data analysis and has been widely adopted in industrial data analytics as well. This course is part of a sequence whose goal is to teach students how to use R effectively for doing data science – importing raw data and transforming it into insights and knowledge that can be communicated with others. Throughout the sequence, there will be an emphasis on coding practices for ensuring reliability, reproducibility, and transparency of data analyses. Part I of the sequence introduces the basic



workflow and focuses on basic usage of important tools in R for visualization, transformation, and organization of data.

## Course expected learning outcomes

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

1. Produce basic visualizations of data in R using the *ggplot2* package.
2. Transform and summarize data in R for generating insights.
3. Organize (i.e. tidy) data in R in such a way that makes it easily amenable to visualization and analysis.
4. Import data in various tabular formats into R.
5. Organize code, data, and analyses into scripts and projects.
6. Author dynamic, reproducible documents that combine code, results, and prose with *Quarto*.

## How this online course works

### Mode of delivery

This course is 100% online. There are no required sessions when you must be logged in to Carmen at a scheduled time. I will send all important class-wide messages through the Announcements tool in Carmen. Please check your notification preferences ([go.osu.edu/canvas-notifications](https://go.osu.edu/canvas-notifications)) to ensure you receive these messages.

### Pace of online activities

This course is divided into weekly modules, consisting of short video lectures and assignments, that are generally released at the beginning of each week. Students are expected to keep pace with weekly deadlines but may schedule their efforts freely within that time frame.

### Credit hours and work expectations



This is a 7-week, **1-credit-hour course**. According to Ohio State policy ([go.osu.edu/credithours](http://go.osu.edu/credithours)), students should expect around 2 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 4 hours of homework (reading and assignment preparation, for example) to receive a grade of at least (C) average.

## 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

You are expected to log in to the course in Carmen every week. Online activities also include watching pre-recorded lecture videos and posting in Carmen discussion forums, including a weekly discussion assignment. 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 (optional)

My office hours are optional.

## Course 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.



## 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. A more conversational tone is fine for non-academic topics.

## 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.

## Protecting and saving your work

Consider composing your academic posts in a word processor/text editor, where you can save your work, and then copying into the Carmen discussion.

# Course materials and technologies

## Textbooks

### Required

1. [R4DS2E] Wickham, Çetinkaya-Rundel, and Grolemund (2023): *R for Data Science, 2<sup>nd</sup> Edition*. Electronic version: <https://r4ds.hadley.nz>. This web version of the book can be accessed freely from any web browser.

## 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 it.osu.edu/help](https://it.osu.edu/help), and support for urgent issues is available 24/7.

- Self-Service and Chat support: [it.osu.edu/help](https://it.osu.edu/help)
- Phone: 614-688-4357(HELP)
- Email: [shelp@osu.edu](mailto:shelp@osu.edu)
- TDD: 614-688-8743

## Technology skills needed for this course

- Basic computer and web-browsing skills
- Navigating Carmen ([go.osu.edu/canvasstudent](https://go.osu.edu/canvasstudent))
- CarmenZoom virtual meetings ([go.osu.edu/zoom-meetings](https://go.osu.edu/zoom-meetings))

## Required Equipment

- Computer: current Mac (MacOs) or PC (Windows 10 or Linux) 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

- **R and RStudio (Desktop IDE):** Students will be required to use R and RStudio software. RStudio can be downloaded for free at <https://posit.co/download/rstudio-desktop/>. **Before installing RStudio, you must also download and install the base R software at <https://cloud.r-project.org/>.** You are expected to install up to date versions of R and RStudio on your personal computer by downloading the software from the links above. As of December 27, 2023, the current versions are **4.3.2** and **2023.12.0+369**, respectively. You will also have to install the packages **tidyverse** and **rmarkdown** in R. Further instructions will be provided in the lectures.



## Carmen Access

You will need to use BuckeyePass ([buckeyepass.osu.edu](http://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
- 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 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 instructor response

### How your grade is calculated

Assignment Category	Points and/or Percentage
Participation	10%
Homework	60%
Final Exam	30%



Assignment Category	Points and/or Percentage
Total	100%

## Description of major course assignments

### Participation

- **Description**

You are expected to watch all lectures. The lectures will be delivered asynchronously and posted on the Carmen course webpage. There will be a discussion assignment associated with each module. Students will be divided into discussion groups of about a dozen students in which they will be prompted to post an answer to one of the "quiz" prompts from lecture, share an example of applying a technique, e.g. creating a plot, or modify an example shown in the lecture. The prompt will vary from module to module, and groups will be shuffled every 3 modules. The purpose of these assignments is to keep you engaged with the weekly pace of the material and to see what other students have shared. However, you will not see other students' posts until you have made one yourself. This is a low stakes assignment that will be graded complete/incomplete and not based on correctness. You will be allowed to drop one such assignment from your grade.

- **Academic integrity and collaboration guidelines**

Discussion posts should be your own work. They will generally require you to repeat an example or answer a question posed in the lecture videos. These assignments will be graded based on completion rather than correctness.



## Homework

- **Description**

Homework will be assigned (approximately) weekly, will be due on announced dates and will be graded. Learning to compute and program requires practice. Homework assignments will mainly consist of exercises designed to reinforce the concepts covered in class during the previous week.

- **Academic integrity and collaboration guidelines**

You may collaborate with classmates on your homework, but ultimately the code that you write and submission that you make must be your own work. For example, I encourage you to discuss strategies for solving problems, but the actual code and explanations that you write must be your own. Moreover, keep in mind the university policies on plagiarism. Do not copy or plagiarize anything you may find on the Internet.

## Final Exam

- **Description**

There will be a “take home” final exam during the last week of the course consisting of a basic data analysis and report produced entirely within R. Details will be announced on Carmen.

- **Academic integrity and collaboration guidelines**

The exam is an individual assignment. You should complete the exam on your own and your submission should be your own original work. You should not discuss it with anyone else.

## Late assignments



If you absolutely need to turn in an assignment late and have a valid excuse, please see me for the necessary arrangements. However, you must notify me in advance in such a situation. Exceptions to this policy will be permitted only in extreme situations such as serious injury immediately prior to an assignment being due or severe illness requiring hospitalization.

## Grading Scale

- 93-100: A
- 90-92: A–
- 87-89: B+
- 83-86: B
- 80-82: B–
- 77-79: C+
- 73-76: C
- 70-72: C–
- 67-69: D+
- 60-66: D
- Under 60: E

## Instructor feedback and response time

### Grading and feedback

For weekly assignments, you can generally expect feedback and grades within **10 days**.

### Discussion board

If you have a question about the class material, please post to the Q&A discussion topic for the corresponding module. I will check and reply to messages in the discussion boards within **24 hours on days when class is in session at the university**.



## Preferred contact method

If you have an individual or sensitive question, please contact me through my Ohio State email address—not Carmen messages. I will reply to emails within **24 hours on days when class is in session at the university**.

## Academic policies

### Academic integrity policy

See **Descriptions of major course assignments**, above, for my specific guidelines about collaboration and academic integrity in the context of this online class.

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](http://go.osu.edu/coam))
- Ten Suggestions for Preserving Academic Integrity ([go.osu.edu/ten-suggestions](http://go.osu.edu/ten-suggestions))

## 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](mailto: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 learning, 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. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting [ccs.osu.edu](https://ccs.osu.edu) or calling 614-292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on-call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help





is also available 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

## **Accessibility accommodations for students with disabilities**

### **Requesting accommodations**

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. 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.

If you are isolating while waiting for a COVID-19 test result, please let me know immediately. Those testing positive for COVID-19 should refer to the [Safe and Healthy Buckeyes site](#) for resources. Beyond five days of the required COVID-



19 isolation period, I may rely on Student Life Disability Services to establish further reasonable accommodations. You can connect with them at [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; or [slds.osu.edu](http://slds.osu.edu).

## Religious accommodations

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.



A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the [Office of Institutional Equity](#).

Policy: [Religious Holidays, Holy Days and Observances](#)

## Course Schedule

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

Dates	Module	Topics/Readings/Assignments
8/20-8/23	1	Introduction to R, RStudio and very basic Quarto Reading: R4DS2E Introduction, 2, 28.1–.2



Dates	Module	Topics/Readings/Assignments
8/26-8/30	2	Basic visualization with ggplot2 Reading: R4DS2E 1 Due: Homework for Module 1
9/3-9/6	3	Data transformation and summarization Reading: R4DS2E 3 Due: Homework for Module 2
9/9-9/13	4	Good coding style; Data tidying (good data style) Reading: R4DS2E 4–5 Due: Homework for Module 3
9/16-9/20	5	Scripts and projects; Data import; Getting help Reading: R4DS2E 6–8 Due: Homework for Module 4
9/23-9/27	6	From data to analysis to final product with Quarto Reading: R4DS2E 28–29 Due: Homework for Module 5
9/30-10/7		Final exam

# Distance Approval Cover Sheet

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

Course Number and Title:

### Carmen Use

When building your course, we recommend using the [ASC Distance Learning Course Template](#) for CarmenCanvas. For more on use of [Carmen: Common Sense Best Practices](#).

A Carmen site will be created for the course, including a syllabus and gradebook at minimum.

If no, why not?

### 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.

Syllabus is consistent and is easy to understand from the student perspective.

Syllabus includes a schedule with dates and/or a description of what constitutes the beginning and end of a week or module.

If there are required synchronous sessions, the syllabus clearly states when they will happen and how to access them.

Additional comments (optional):

### Instructor Presence

For more on instructor presence: [About Online Instructor Presence](#).

Students should have opportunities for regular and substantive academic interactions with the course instructor. Some ways to achieve this objective:

Regular instructor communications with the class via announcements or weekly check-ins.

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.
- Regular opportunities for students to receive personal instructor feedback on assignments.

Please comment on this dimension of the proposed course (or select/explain methods above):

## **Delivery Well-Suited to DL/DH Environment**

*Technology questions adapted from the [Quality Matters](#) rubric. For information about Ohio State learning technologies: [Toolsets](#).*

- The tools used in the course support the learning outcomes and competencies.
- Course tools promote learner engagement and active learning.
- Technologies required in the course are current and readily obtainable.
- Links are provided to privacy policies for all external tools required in the course.

Additional technology comments (optional):

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.)

If you believe further explanation would be helpful, please comment on how course activities have been adjusted for distance learning (optional):

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

Provide a brief outline of a typical course week, categorizing course activities and estimating the approximate time to complete them or participate:

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

## 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](#).

- 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.
- 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.

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

Additional comments (optional):

## Academic Integrity

For more information: [Academic Integrity](#).

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

Additional comments (optional):

## Frequent, Varied Assignments/Assessments

For more information: [Designing Assessments for Students](#).

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

- 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.
- Variety of assignment formats to provide students with multiple means of demonstrating learning.
- 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):

## Community Building

For more information: [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:

- 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.
- 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):

## Transparency and Metacognitive Explanations

For more information: [Supporting Student Learning](#).

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:

- Instructor explanations about the learning goals and overall design or organization of the course.
- Context or rationale to explain the purpose and relevance of major tasks and assignments.

- 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.
- Opportunities for students to provide feedback on the course.

Please comment on this dimension of the proposed course (or select methods above):

## **Additional Considerations**

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

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Syllabus and cover sheet reviewed by *Jeremie Smith* on

Reviewer Comments:

Additional resources and examples can be found on [ASC's Office of Distance Education](#) website.

## Re: Concurrence for STAT 5730 Introduction to R for Data Science

Sivilotti, Paul

Mon 4/1/2019 9:44 AM

To: Lee, Yoonkyung <yklee@stat.osu.edu>;

Hi Yoon--

Our curriculum committee reviewed the proposal. CSE concurs with the course proposal.

Best wishes,  
--paul

On Mar 20, 2019, at 10:51 PM, Lee, Yoonkyung <[yklee@stat.osu.edu](mailto:yklee@stat.osu.edu)> wrote:

Dear Paul,

We would like to request your concurrence on a new course, STAT 5730 Introduction to R for Data Science. This course is designed for our undergraduate and graduate students as an elective, teaching them skills and underlying concepts of the R programming language and computing environment for data analysis. Attached please find the sample syllabus and our rationale for the course proposal.

Please let me know if you have any questions. We would appreciate getting your response within two weeks.

Thank you!

Yoon

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Yoonkyung Lee  
Professor of Statistics  
Professor of Computer Science and Engineering (by courtesy)  
The Ohio State University

<proposal.pdf> <syllabus.pdf>

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Prof. Paul A. G. Sivilotti Computer Science and Engineering  
The Ohio State University 2015 Neil Ave., Columbus OH, 43210  
614.292.5835, Fax 292.2911 <http://www.cse.ohio-state.edu/~paolo>

