

Welcome to STAT 240 (001)! The course material will be organized using the Canvas Modules (see the Modules link on the left panel); each week of the semester will have a Module with the content for the week. This will include lecture material, readings, homework assignments, discussion group assignments, and Short Online Assessments (SOAs). More details and relevant links are provided below. If you have any questions or issues, please do not hesitate to attend any of the [office hours](https://canvas.wisc.edu/courses/293926/pages/office-hours) (<https://canvas.wisc.edu/courses/293926/pages/office-hours>), or post on our [Piazza site](http://piazza.com/wisc/spring2022/stat240) (<http://piazza.com/wisc/spring2022/stat240>).

Relevant links

<a href="https://canvas.wisc.edu/courses/293926/pages/syllabus-and-course-policies">Syllabus and Course Policies</a> ( <a href="https://canvas.wisc.edu/courses/293926/pages/syllabus-and-course-policies">https://canvas.wisc.edu/courses/293926/pages/syllabus-and-course-policies</a> )	<a href="https://r4ds.had.co.nz">R for Data Science (R4DS)</a> ( <a href="https://r4ds.had.co.nz">https://r4ds.had.co.nz</a> )	<a href="http://piazza.com/wisc/spring2022/stat240">Piazza</a> ( <a href="http://piazza.com/wisc/spring2022/stat240">http://piazza.com/wisc/spring2022/stat240</a> )
<a href="https://canvas.wisc.edu/courses/293926/pages/office-hours">Office Hours</a> ( <a href="https://canvas.wisc.edu/courses/293926/pages/office-hours">https://canvas.wisc.edu/courses/293926/pages/office-hours</a> )	<a href="https://bookdown.org/jhret-jarvel/stat240-case-studies/">Course Notes and Case Studies (CNCS)</a> ( <a href="https://bookdown.org/jhret-jarvel/stat240-case-studies/">https://bookdown.org/jhret-jarvel/stat240-case-studies/</a> )	<a href="https://canvas.wisc.edu/courses/293926/pages/final-group-project/">Final Group Project</a> ( <a href="https://canvas.wisc.edu/courses/293926/pages/final-group-project/">https://canvas.wisc.edu/courses/293926/pages/final-group-project/</a> ) / <a href="https://canvas.wisc.edu/courses/293926/modules/651236">Project Module</a> ( <a href="https://canvas.wisc.edu/courses/293926/modules/651236">https://canvas.wisc.edu/courses/293926/modules/651236</a> )

Tutorial for creating **map graphics** by Tim Gruenloh: [geo-graphing.Rmd](https://canvas.wisc.edu/courses/293926/files/256686017wrape1) (<https://canvas.wisc.edu/courses/293926/files/256686017wrape1>), [↓](https://canvas.wisc.edu/courses/293926/files/25668601/download?download_frd=1) ([https://canvas.wisc.edu/courses/293926/files/25668601/download?download\\_frd=1](https://canvas.wisc.edu/courses/293926/files/25668601/download?download_frd=1)) / [geo-graphing.html](https://canvas.wisc.edu/courses/293926/files/256686077wrape1) (<https://canvas.wisc.edu/courses/293926/files/256686077wrape1>), [↓](https://canvas.wisc.edu/courses/293926/files/25668607/download?download_frd=1) ([https://canvas.wisc.edu/courses/293926/files/25668607/download?download\\_frd=1](https://canvas.wisc.edu/courses/293926/files/25668607/download?download_frd=1))

Weekly content

Week	Dates	Discussion Session Topic	Readings	Lecture Topics	Modules	Sample Solutions
1	Jan 25 - 28		Syllabus and Course Policies R4DS Chapter 1-2 (Intro) CNCS Chapter 1 (Introduction) CNCS Chapter 2 (Prerequisites) CNCS Chapter 5 (R Fundamentals)	Welcome and Getting Started	<a href="https://canvas.wisc.edu/courses/293926/modules/606361">Module 1</a>	
2	Jan 31 - Feb 4	<a href="https://www.r-project.org/">R</a> ( <a href="https://www.r-project.org/">https://www.r-project.org/</a> ) and <a href="https://rstudio.com/">RStudio</a> ( <a href="https://rstudio.com/">https://rstudio.com/</a> )	R4DS Chapter 3 (Visualizations) R4DS Chapter 4 (Workflow) CNCS Chapter 3 (Madison Lakes)	ggplot2 and Lake Mendota Analysis	<a href="https://canvas.wisc.edu/courses/293926/modules/618636">Module 2</a>	<a href="https://canvas.wisc.edu/courses/293926/files/246788877wrape1">01-discussion-basics-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/246788877wrape1">https://canvas.wisc.edu/courses/293926/files/246788877wrape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/24678887/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/24678887/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/24678887/download?download_frd=1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/246788717wape1">hw01-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/246788717wape1">https://canvas.wisc.edu/courses/293926/files/246788717wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/24678871/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/24678871/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/24678871/download?download_frd=1</a> )
3	Feb 7 - 11	<a href="https://ggplot2.tidyverse.org/">ggplot2</a> ( <a href="https://ggplot2.tidyverse.org/">https://ggplot2.tidyverse.org/</a> )	CNCS Chapter 7 (Madison Weather) R4DS Chapter 5 (Transformations) R4DS Chapter 7 (Exploratory Data Analysis)	dplyr and Madison Weather	<a href="https://canvas.wisc.edu/courses/293926/modules/640618">Module 3</a>	<a href="https://canvas.wisc.edu/courses/293926/files/246789537wape1">02-discussion-ggplot-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/246789537wape1">https://canvas.wisc.edu/courses/293926/files/246789537wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/24678953/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/24678953/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/24678953/download?download_frd=1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/247995107wape1">hw02-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/247995107wape1">https://canvas.wisc.edu/courses/293926/files/247995107wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/24799510/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/24799510/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/24799510/download?download_frd=1</a> )
4	Feb 14 - 18	<a href="https://rstudio.com/wp-content/uploads/2015/02/data-wrangling-cheatsheet.pdf">dplyr</a> ( <a href="https://rstudio.com/wp-content/uploads/2015/02/data-wrangling-cheatsheet.pdf">https://rstudio.com/wp-content/uploads/2015/02/data-wrangling-cheatsheet.pdf</a> )	CNCS Chapter 10 (Airport Waiting Times) R4DS Chapter 10 (Tibbles) R4DS Chapter 11 (Data Import) R4DS Chapter 16 (Dates and Times)	readr, lubridate, and Airport Waiting Times	<a href="https://canvas.wisc.edu/courses/293926/modules/640618">Module 4</a>	<a href="https://canvas.wisc.edu/courses/293926/files/248704607wape1">03-discussion-dplyr-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/248704607wape1">https://canvas.wisc.edu/courses/293926/files/248704607wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/24870460/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/24870460/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/24870460/download?download_frd=1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/248793527wape1">hw03-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/248793527wape1">https://canvas.wisc.edu/courses/293926/files/248793527wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/24879352/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/24879352/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/24879352/download?download_frd=1</a> )
5	Feb 21-25	<a href="https://readr.tidyverse.org/">readr</a> ( <a href="https://readr.tidyverse.org/">https://readr.tidyverse.org/</a> ) and <a href="https://lubridate.tidyverse.org/">lubridate</a> ( <a href="https://lubridate.tidyverse.org/">https://lubridate.tidyverse.org/</a> )	CNCS Chapter 13 (Wisconsin Obesity Data) R4DS Ch. 12 (Tidy Data) R4DS Ch. 13 (Relational Data)	tidyr and Obesity Data	<a href="https://canvas.wisc.edu/courses/293926/modules/640620">Module 5</a>	<a href="https://canvas.wisc.edu/courses/293926/files/249663977wape1">04-discussion-readr-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/249663977wape1">https://canvas.wisc.edu/courses/293926/files/249663977wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/24966397/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/24966397/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/24966397/download?download_frd=1</a> )
	<b>Tuesday, March 1</b>	<b>Midterm Exam</b>	<a href="https://canvas.wisc.edu/courses/293926/pages/practice-midterm-exam">Practice Midterm Exam</a> ( <a href="https://canvas.wisc.edu/courses/293926/pages/practice-midterm-exam">https://canvas.wisc.edu/courses/293926/pages/practice-midterm-exam</a> ), <a href="https://canvas.wisc.edu/courses/293926/pages/midterm-exam-data">Midterm Exam Data</a> ( <a href="https://canvas.wisc.edu/courses/293926/pages/midterm-exam-data">https://canvas.wisc.edu/courses/293926/pages/midterm-exam-data</a> )		<a href="https://canvas.wisc.edu/courses/293926/modules/651236">Midterm Exam Access</a>	<a href="https://canvas.wisc.edu/courses/293926/files/251088637wape1">2022-spring-midterm-eart1-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/251088637wape1">https://canvas.wisc.edu/courses/293926/files/251088637wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25108863/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25108863/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25108863/download?download_frd=1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/251088637wape1">2022-spring-midterm-eart2-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/251088637wape1">https://canvas.wisc.edu/courses/293926/files/251088637wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25108863/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25108863/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25108863/download?download_frd=1</a> )
6	Feb 28 - Mar 4	<a href="https://tidyr.tidyverse.org/">tidyr</a> ( <a href="https://tidyr.tidyverse.org/">https://tidyr.tidyverse.org/</a> )		Obesity Data, continued (Thursday), Functions	<a href="https://canvas.wisc.edu/courses/293926/modules/640621">Module 6</a> No HW assignment No SOAs	<a href="https://canvas.wisc.edu/courses/293926/files/253363977wape1">05-discussion-tidyr-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/253363977wape1">https://canvas.wisc.edu/courses/293926/files/253363977wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25336397/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25336397/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25336397/download?download_frd=1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/252560407wape1">hw05-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/252560407wape1">https://canvas.wisc.edu/courses/293926/files/252560407wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25256040/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25256040/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25256040/download?download_frd=1</a> )
7	Mar 7 - 11	functions	R4DS Ch. 19 (Functions) CNCS 19 (Probability)	Probability, Binomial distribution	<a href="https://canvas.wisc.edu/courses/293926/modules/640622">Module 7</a>	<a href="https://canvas.wisc.edu/courses/293926/files/253364037wape1">06-discussion-functions-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/253364037wape1">https://canvas.wisc.edu/courses/293926/files/253364037wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25336403/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25336403/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25336403/download?download_frd=1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/253641367wape1">hw06-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/253641367wape1">https://canvas.wisc.edu/courses/293926/files/253641367wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25364136/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25364136/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25364136/download?download_frd=1</a> )
	Mar 14 - 18	Spring Break				
8	Mar 21 - 25	binomial distribution	CNCS 20 (Binomial distributions) CNCS 21 (Normal distributions) CNCS Chapter 18 (Chimpanzees)	Chimpanzee Data and confidence intervals for proportions	<a href="https://canvas.wisc.edu/courses/293926/modules/652498">Module 8</a>	<a href="https://canvas.wisc.edu/courses/293926/files/255079017wape1">07-discussion-binomial-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/255079017wape1">https://canvas.wisc.edu/courses/293926/files/255079017wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25507901/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25507901/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25507901/download?download_frd=1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/255079137wape1">hw06-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/255079137wape1">https://canvas.wisc.edu/courses/293926/files/255079137wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25507913/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25507913/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25507913/download?download_frd=1</a> )
9	Mar 28 - Apr 1	statistical models	CNCS 23.1-23.3 (Hypothesis testing)	Chimpanzee Data and hypothesis testing for proportions	<a href="https://canvas.wisc.edu/courses/293926/modules/652499">Module 9</a>	<a href="https://canvas.wisc.edu/courses/293926/files/257892997wape1">08-discussion-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/257892997wape1">https://canvas.wisc.edu/courses/293926/files/257892997wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25789299/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25789299/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25789299/download?download_frd=1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/257893037wape1">hw07-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/257893037wape1">https://canvas.wisc.edu/courses/293926/files/257893037wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25789303/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25789303/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25789303/download?download_frd=1</a> )
10	Apr 4-8	Project Background Assignment		Boston Marathon and inference on the mean	<a href="https://canvas.wisc.edu/courses/293926/modules/652500">Module 10</a>	<a href="https://canvas.wisc.edu/courses/293926/files/259249487wape1">09-discussion-means-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/259249487wape1">https://canvas.wisc.edu/courses/293926/files/259249487wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25924948/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25924948/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25924948/download?download_frd=1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/257893187wape1">hw08-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/257893187wape1">https://canvas.wisc.edu/courses/293926/files/257893187wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25789318/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25789318/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25789318/download?download_frd=1</a> )
11	Apr 11-15	statistical inference	CNCS Chapter 26.1-26.2 (Correlation and Regression)	Exoplanets and Regression	<a href="https://canvas.wisc.edu/courses/293926/modules/652501">Module 11</a>	<a href="https://canvas.wisc.edu/courses/293926/files/259249587wape1">10-discussion-regression-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/259249587wape1">https://canvas.wisc.edu/courses/293926/files/259249587wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25924958/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25924958/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25924958/download?download_frd=1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/259249707wape1">hw09-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/259249707wape1">https://canvas.wisc.edu/courses/293926/files/259249707wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25924970/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25924970/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25924970/download?download_frd=1</a> )
12	Apr 18-22	linear regression	R4DS Ch. 14 (strings)	Introduction to stringr	<a href="https://canvas.wisc.edu/courses/293926/modules/652502">Module 12</a>	<a href="https://canvas.wisc.edu/courses/293926/files/260283397wape1">hw10-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/260283397wape1">https://canvas.wisc.edu/courses/293926/files/260283397wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/26028339/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/26028339/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/26028339/download?download_frd=1</a> )
13	Apr 25-29	Project work time		Multiple regression and the Boston Marathon	<a href="https://canvas.wisc.edu/courses/293926/modules/652504">Module 13</a>	<a href="https://canvas.wisc.edu/courses/293926/files/259249867wape1">hw11-solutions.html</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/259249867wape1">https://canvas.wisc.edu/courses/293926/files/259249867wape1</a> ) <a href="https://canvas.wisc.edu/courses/293926/files/25924986/download?download_frd=1">↓</a> ( <a href="https://canvas.wisc.edu/courses/293926/files/25924986/download?download_frd=1">https://canvas.wisc.edu/courses/293926/files/25924986/download?download_frd=1</a> )
14	May 2 - 6	Project presentations		Cholesterol and Heart Disease Semester Review	<a href="https://canvas.wisc.edu/courses/293926/modules/652506">Module 14</a>	
<a href="https://canvas.wisc.edu/courses/293926/modules/663514">Final Exam</a>	<b>Thursday, May 12</b>	<a href="https://canvas.wisc.edu/courses/293926/modules/663514">Final Exam</a>	<a href="https://canvas.wisc.edu/courses/293926/pages/practice-final-exam">Practice Final Exam</a> ( <a href="https://canvas.wisc.edu/courses/293926/pages/practice-final-exam">https://canvas.wisc.edu/courses/293926/pages/practice-final-exam</a> ), <a href="https://canvas.wisc.edu/courses/293926/pages/final-exam-data">Final Exam Data</a> ( <a href="https://canvas.wisc.edu/courses/293926/pages/final-exam-data">https://canvas.wisc.edu/courses/293926/pages/final-exam-data</a> ), <a href="https://canvas.wisc.edu/courses/293926/modules/663514">Final Exam Module</a> ( <a href="https://canvas.wisc.edu/courses/293926/modules/663514">https://canvas.wisc.edu/courses/293926/modules/663514</a> )			