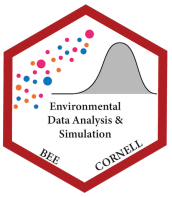
NOTE The full versions of the course syllabus, schedule, and all course materials are available online at https://envdata.viveks.me/spring2026/. This is only a partially complete, static version.

Environmental Data Analysis & Simulation



BEE 4850/5850 • Spring 2026

Contents

Course Overview

This is a 3 credit course offered as an elective.

Instructor
- Vivek Srikrishnan
- vs498@cornell.edu
- 318 Riley-Robb Hall

TA
- Shikhar Prakash
- sp868@cornell.edu
- TBD

Meetings
- MWF
- 11:15-12:05
- 401 Riley-Robb Hall

Course Description

Understanding data is an increasingly integral part of working with environmental systems. Data analysis is a critical part of understanding system dynamics and projecting future conditions and outcomes. This course will provide an overview of a generative approach to environmental data analysis, which uses simulation and assessments of predictive performance to provide insight into the structure of data and its data-generating process. We will discuss exploratory analysis and visualization, model development and fitting, uncertainty quantification, and model assessment. The goal is to provide students with a framework and an initial toolkit of methods that they can use to formulate and update hypotheses about data and models. Students will actively analyze and use real data from a variety of environmental systems.

In particular, over the course of the semester, we will:

- conduct exploratory analyses of environmental datasets;
- discuss best practices for and complexities of data visualization;
- calibrate statistical and process-based numerical models using environmental data;
- use simulations from calibrated models to identify key sources of uncertainty and model error;
- assess model fit and adequacy through predictive ability.

Learning Outcomes

After completing this class, students will be able to:

- conduct exploratory analyses of data, including creating, interpreting, and critiquing data visualizations;
- calibrate environmental models to observations, including missing data;
- quantify and propagate uncertainty using simulation methods such as the bootstrap and Monte Carlo;
- assess model adequacy and performance using predictive simulations;
- evaluate evidence for and against hypotheses about environmental systems using model simulations.

Prerequisites & Preparation

The following courses/material would be ideal preparation:

- One course in programming (*e.g.* CS 1110, 1112 or ENGRD/CEE 3200)
- One course in probability or statistics (ENGRD 2700, CEE 3040, or equivalent)

In the absence of one or more these prerequisites, you can seek the permission of instructor.

What If My Programming or Stats Skills Are Rusty?

If your programming or statistics skills are a little rusty, don't worry! We will review concepts and build skills as needed.

Typical Topics

- Introduction to exploratory data analysis;
- Principles of data visualization;
- Probability models for data;
- Extreme values;
- Missing data;
- Model fitting;
- Uncertainty quantification with the bootstrap and Monte Carlo;
- Model assessment and comparison.

Course Meetings

This course meets MWF from 11:15-12:05 in 401 Riley-Robb. In addition to the course meetings (a total of 42 lectures, 50 minutes each), the final project will be due during the university finals period. Students can expect to devote, on average, 6 hours of effort during the exam period.

Course Philosophy and Expectations

The goal of our course is to help you gain competancy and knowledge in the area of data analysis. This involves a dual responsibility on the part of the instructor and the student. As the instructor, my responsibility is to provide you with a structure and opportunity to learn. To this end, I will commit to:

- provide organized and focused lectures, in-class activities, and assignments;
- encourage students to regularly evaluate and provide feedback on the course;
- manage the classroom atmosphere to promote learning;
- schedule sufficient out-of-class contact opportunities, such as office hours;
- allow adequate time for assignment completion;
- make lecture materials, class policies, activities, and assignments accessible to students.

I encourage you to discuss any concerns with me during office hours or through a course communications channel! Please let me know if you do not feel that I am holding up my end of the bargain.

Students can optimize their performance in the course by:

- attending all lectures;
- doing any required preparatory work before class;
- actively participating in online and in-class discussions;
- beginning assignments and other work early;
- and attending office hours as needed.

Textbooks and Course Materials

There is no required text for this class, and all course materials will be made available on the course website or through the Cornell library. However, the following books might be useful as a supplement to/expansion on the topics covered in class:

- Gelman, A., Carlin, J. B., Stern, H. S., Dunson, D. B., Vehtari, A., & Rubin, D. B. (2013). *Bayesian Data Analysis* (3rd ed.). http://www.stat.columbia.edu/~gelman/book/BDA3.pdf

- McElreath, R. (2020). *Statistical Rethinking: A Bayesian Course with Examples in R and Stan* (2nd ed.). https://xcelab.net/rm/
- D'Agostini, G. (2003). *Bayesian Reasoning in Data Analysis: A Critical Introduction*.
- Gelman, A., Hill, J., & Vehtari, A. (2020). *Regression and Other Stories*. https://avehtari.github.io/ROS-Examples/index.html

Community

Diversity and Inclusion

Our goal in this class is to foster an inclusive learning environment and make everyone feel comfortable in the classroom, regardless of social identity, background, and specific learning needs. As engineers, our work touches on many critical aspects of society, and questions of inclusion and social justice cannot be separated from considerations of systems analysis, objective selection, risk analysis, and trade-offs.

In all communications and interactions with each other, members of this class community (students and instructors) are expected to be respectful and inclusive. In this spirit, we ask all participants to:

- share their experiences, values, and beliefs;
- be open to and respectful of the views of others; and
- value each other's opinions and communicate in a respectful manner.

Please let me know if you feel any aspect(s) of class could be made more inclusive. Please also share any preferred name(s) and/or your pronouns with me if you wish: I use he/him/his, and you can refer to me either as Vivek or Prof. Srikrishnan.

Please be professional and courteous on all course interactions and platforms, and (except in designated off-topic boards or forums) please keep all online discussion relevant to the course. We do not anticipate this as a problem given our experience; almost all students in almost all classes meet these expectations. However, even a single incident can do serious damage to the learning environment and the well-being of your fellow students.

Sexually explicit, harassing, threatening, bullying, trolling, racist, sexist, homophobic, transphobic, or otherwise grossly unprofessional content will be removed. Anyone behaving in these fashions or posting such content will be blocked/banned from the appropriate platform and may be given an F if they are consistently disruptive.

! Please, Be Excellent To Teach Other

We all make mistakes in our communications with one another, both when speaking and listening. Be mindful of how spoken or written language might be misunderstood, and be aware that, for a variety of reasons, how others perceive your words and actions may not be exactly how you intended them. At the same time, it is also essential that we be respectful and interpret each other's comments and actions in good faith.

Student Accomodations

Let me know if you have any access barriers in this course, whether they relate to course materials, assignments, or communications. If any special accomodations would help you navigate any barriers and improve your chances of success, please exercise your right to those accomodations and reach out to me as early as possible with your Student Disability Services (SDS) accomodation letter. This will ensure that we have enough time to make appropriate arrangements.

If you need more immediate accomodations, but do not yet have a letter, please let me know and then follow up with SDS.

Course Communications

Most course communications will occur via Ed Discussion. Public Ed posts are generally preferred to private posts or emails, as other students can benefit from the discussions. If you would like to discuss something privately, please do reach out through email or a private Ed post (which will only be viewable by you and the course staff).

Announcements will be made on the course website and in Ed. Emergency announcements will also be made on Canvas.

! Ed Tips

- **Do not take screenshots of code**. I will not respond. Screenshots can be difficult to read and limit accessibility. Put your code on GitHub, share the link, and point to specific line numbers if relevant, or provide a *simple*, self-contained example of the problem you're running into.
- If you wait until the day an assignment is due (or even late the previous night) to ask a question on Ed, there is a strong chance that I will not see your post prior to the deadline.
- If you see unanswered questions and you have some insight, please answer! This class will work best when we all work together as a community.

Mental Health Resources

We all have to take care of our mental health, just as we would our physical health. As a student, you may experience a range of issues which can negatively impact your mental health. Please do not ignore any of these stressors, or feel like you have to navigate these challenges alone! You are part of a community of students, faculty, and staff, who have a responsibility to look for one another's well-being. If you are struggling with managing your mental health, or if you believe a classmate may be struggling, please reach out to the course instructor, the TA, or, for broader support, please take advantage of Cornell's mental health resources.

! Mental Health And This Class

I am not a trained counselor, but I am here to support you in whatever capacity we can. You should never feel that you need to push yourself past your limits to complete any assignment for this class or any other. If we need to make modifications to the course or assignment schedule, you can certainly reach out to me, and all relevant discussions will be kept strictly confidential.

Course Policies

Many policies below (including grading policies) are broken out and discussed further on the course website. Lack of familiarity with any of these policies is not an excuse for violating any of them.

Attendance

Attendance is not *required*, but in general, students who attend class regularly will do better and get more out of the class than students who do not. Your class participation grade will reflect both the quantity and quality of your participation, only some of which can occur asynchronously. I will put as many course materials, such as lecture notes and announcements, as possible online, but viewing materials online is not the same as active participation and engagement. Life happens, of course, and this may lead you to miss class. Let me know if you need any appropriate arrangements ahead of time.

! What If I'm Sick?

Please stay home if you're feeling sick! This is beneficial for both for your own recovery and the health and safety of your classmates. We will also make any necessary arrangements for you to stay on top of the class material and

if whatever is going on will negatively impact your grade, for example by causing you to be unable to submit an assignment on time.

Mask Policies

Please stay home and rest if you have symptoms of COVID-19 or any other respiratory illness. No masking will be required, but please be respectful of others who may wear masks or take other precautions to avoid illness. This policy may change if there is another outbreak of COVID-19 (or other illness), but will be kept consistent with broader Cornell mask policies.

Academic Integrity

! Important

TL;DR: Don't cheat, copy, or plagiarize!

This class is designed to encourage collaboration, and students are encouraged to discuss their work with other students. However, I expect students to abide by the Cornell University Code of Academic Integrity in all aspects of this class. **All work submitted must represent the students' own work and understanding**, whether individually or as a group (depending on the particulars of the assignment). This includes analyses, code, software runs, and reports. Engineering as a profession relies upon the honesty and integrity of its practitioners (see *e.g.* the American Society for Civil Engineers' Code of Ethics).

Violations of the academic integrity policies below

What If I'm Unsure About The Policies?

If you are unsure about whether a particular action (such as a use of external resources) is permittable under this policy, **please consult with Prof. Srikrishnan before using them and particularly before submitting anything.** If you realize after the fact (but before submitting, ideally) that you may have unintentionally violated the policy, **it is your responsibility to let Prof. Srikrishnan know ASAP so we can figure out a solution**.

External Resources

The collaborative environment in this class **should not be viewed as an invitation for plagiarism**. Plagiarism occurs when a writer intentionally misrepresents another's words or ideas (including code!) as their own without acknowledging the source. **All** external resources[1] which are consulted while working on an assignment should be referenced, including other students and faculty with whom the assignment is discussed. You will never be penalized for consulting an external source for help and referencing it, but plagiarism will result in a zero for that assignment as well as the potential for your case to be passed on for additional disciplinary action.

An exception is for homework, lab, or quiz solutions from previous offerings of this course. The use of these is **strictly prohibited**. You may not consult these solutions, read them, or ask students who took the course previously for help.

⚠ Why Can't I Consult Old Solutions?

[1] An external resource is one which was not provided by the instructor as part of the course material; these policy does not apply to lecture notes, assignments, or readings from the current course offering.

> The core problem is that relying on previous solutions (or prior knowledge of the course from others) does not allow you to practice the course material and makes feedback and assessment of your work meaningless. It also is unfair to others in the course who may not have access to these materials.
>
> This is fundamentally different from working with your classmates, who are also trying out the problems for the first time.

AI/ML Resource Policy

Large language models (LLMs), such as GPT, and other generative AI models are powerful tools for predicting text and code patterns. However, while they can save time (though you'd be surprised at how little time their careful use saves), they often make mistakes that can be hard to detect or fail to communicate key ideas or insights at the expense of more general and banal text. As you are likely to encounter an ever-widening use of these tools when you leave Cornell, it is critical that you learn how to use these tools responsibly and effectively.

However, this class will not focus on teaching you how to use LLMs responsibly; we assume that if you are using these tools, you are doing so in a way which benefits your learning and helps you communicate your already-existing understanding, rather than substituting for it. You are **generally** permitted to use these tools, but you are ultimately responsible for guaranteeing, understanding, and interpreting your results. If you submit work that was LLM generated, and this work receives a poor grade due to the LLM's inability to demonstrate understanding, your grade will reflect that substantive assessment.

As a result, use of these tools is **highly discouraged**. You will have to be honest with yourself about your ability to check and correct their output, whether that is code or writing. Moreover, using them to drafting initial code or text fundamentally inhibits the learning process; working through the friction of expressing and articulating your thoughts in code or text is an important part of learning!

General guidelines for AI/ML use:

- **AI tools for code**: You may use LLM tools for code development and debugging, particularly for translating between other languages that you already have a better knowledge of (*e.g.* Python) and Julia. However, LLMs often make bad decisions about how to structure code, can introduce bugs (including suggesting packages that do not exist or outdated syntax), and can mislead you about what your code is doing. You are responsible for understanding and debugging any code involved in solving computational exercises. Notably, if you ask for help debugging LLM-generated code, this will not be possible unless you have already developed your own understanding of what each piece of the code does (or should do) and which parts work and don't work.
- **AI tools for writing**: LLMs **should not be used to generate text that you submit as your own work**. The point of written assessments (including model derivations and interpretations) is to stimulate your own critical thinking and mathematical skills, and you short-cut this process by substituting LLM use for your own process of formulating and articulating ideas. Even using LLMs to do the initial writing and editing that output will result in shallower thinking. As we are not teaching you in this class to critically engage with LLMs, However, you *may* use LLMs or similar tools (*e.g.* Grammarly) to help you edit your writing. As mentioned before, you are ultimately responsible for the content of any work you turn in: if a tool used to edit grammar changed the substance of your writing, you will be responsible for the submission.

To distinguish between these permissible and impermissible uses, you are required to cite your use of the tool (as with any other external reference). In particular, you must disclose how you use the LLM and how you incorporated any output into your final submission. **Failure to fully reference the interaction, as described above, will be treated as plagiarism and referred to the University accordingly.** If you

have any questions about whether your planned use of an AI/ML tool complies with the academic integrity policy, please consult a member of the course staff ahead of its use.

Office Hours

Office hours with both Prof. Srikrishnan and the TA will be available each week at times specified at the top of this syllabus. Changes to the office hour schedule (cancellations/rescheduling) will be announced in class and on Ed Discussion.

Office hours are intended to help all students who attend. This time is limited, and is best spent on issues that are relevant to as many students as possible. While we will do our best to answer individual questions, students asking us to verify or debug homework solutions or help with syntax will have the lowest priority (**but please do ask about how to verify or debug your own solutions!**). However, we are happy to discuss conceptual approaches to solving homework problems, which may help to reveal bugs.

Space at office hours can be limited (we may shift to the conference room in 316 Riley-Robb if offices are full and it is available). If the room is crowded and you can find an alternative source of assistance, or if your question is low priority (*e.g.* debugging) please be kind and make room for others.

Participation

Participating fully in the class allows you to gain more from the class and contribute more to the learning of your classmates. Some ways to participate include:

- Asking questions in class or on Ed;
- Answering questions in class or on Ed;
- Actively engaging in in-class activities;
- Coming to office hours.

What If I Can't Make Office Hours?

While we will try to select office hours that work for as much of the class as possible, both the course staff and students have busy schedules and no time will work for everyone. **If you need help outside of office hours (*e.g.* office hours do not fit your schedule), please send an email to the TA or Prof. Srikrishnan as soon as possible**. These requests may not be accepted on short notice (*e.g.* if you have a question about a homework due on Thursday and send a request on the immediately prior Wednesday; schedules for course staff may already be full). We recommend starting your homework promptly so you can take advantage of office hours or make an appointment over a longer period.

Assessments

Technologies

We will use Canvas as a gradebook, and to distribute PDFs of readings (which also be made available through the website when possible, via the Cornell library). Ed Discussion will be used for course communications. Assignments will be submitted and graded in Gradescope.

Students can use any programming language they like to solve problems, though we will make notebooks and package environments available for Julia (which may help structure your assignments if you use a different language) via GitHub. If students use a language other than Julia, we may limited in the programming assistance we can provide (though we're happy to try to help!).

We recommend students create a GitHub account and use GitHub to version control and share their code throughout the semester.

Grading

Final grades will be computed based on the following assessment weights:

Assessment	Weight
Exercises	5%
Quizzes	25%
Readings	10%
Homework Assignments	30%
Term Project	30%

The following grading scale will be used to convert the numerical weighted average to letter grades:

Grade	Range
A+	97–100
A	93–97
A-	90–93
B+	87–90
B	83–87
B-	80–83
C+	77–80
C	73–77
C-	70–73
D+	67–70
D	63–67
D-	60–63
F	< 60

Exercises

Exercises will be assigned in Gradescope most weeks based on recently discussed content. These will be relatively short and are intended to consolidate material recently discussed in class. The exercises will be released after Wednesday's class and will be due prior to next Monday's. Exercises can be retaken as many times as are desired prior to the submission deadline. They may consist of multiple choice questions or questions involving small mathematical, computational, or open-ended problems. One exercise will be dropped automatically (this is intended to account for a week in which you forget or are too busy to submit).

Quizzes

Quizzes will be given in-class at the end of several units. These will be in the first half of the relevant class, approximately 25 minutes long. No materials (books, notes, computers, or calculators) are allowed. Quizzes will be scanned into Gradescope for grading. The material which will be covered on the

quiz will be specified ahead of time in class or on Ed Discussion. No quizzes will be dropped for students in BEE 5850, but one quiz will be dropped for students in 4850.

Readings

Readings will be assigned throughout the semester to help students engage with background or uses of the material for that week. These readings will be provided as PDFs on Canvas through Perusall and (when possible through open access or the Cornell library) links from the website. Students are expected to demonstrate engagement with the material through collaborative annotations, whether their own comments on parts of the reading they found interesting or had questions on or responses to other students' annotations. Students should post overall reflections, synthesizing their takeaways from the reading with content from this or other classes or other experiences, on Ed Discussion. Both the annotations and the reflections should be completed by the start of the first lecture the next week. Students will not be graded on the quantity of annotations, but the degree to which their annotations reflect critical engagement with the reading. One reading assignment will be dropped automatically.

Students in BEE 5850 will additionally select a peer-reviewed journal article related to an application of data analysis and will write a short discussion paper (2-3 pages) analyzing the hypotheses and statistical choices. Students should feel free to select their own paper or can work with Prof. Srikrishnan to identify one of interest, but in all cases should discuss with Prof. Srikrishnan to ensure that the article is appropriate. The discussion paper will be due towards at the end of the semester.

Homework Assignments

There will be approximately 5 homework assignments assigned. Homework assignments are intended to be more in-depth applications of course material to data analysis problems.

You will generally have two class weeks to work on an assignment. This is intended to provide you enough time to work on the problem and debug and evaluate your code (including troubleshooting any technical problems); these are not reasons for late submission. Each homework assignment will build on material from the prior classes and possibly from the day the homework is assigned.

Students are encouraged to collaborate and learn from each other on homework assignments, but students must submit their own assignments which represent their own understanding of the material.

Consulting and referencing external resources and your peers is encouraged (engineering is a collaborative discipline!), but plagiarism is a violation of academic integrity.

Some notes on assignment and grading logistics:

- Homework assignments will be distributed using GitHub Classroom. While GitHub use is not required for the class aside from accepting and cloning assignments, students are encouraged to update their GitHub repositories as they work on the assignments; this helps with answering questions, keeping solutions synced across groups, and gives you a backstop in case something goes wrong and you can't submit your assignment on time.
- Homeworks are due by 9:00pm Eastern Time on the designed due date (usually a Thursday). Your assignment writeup should be submitted to Gradescope as a PDF with the answers to each question tagged (a failure to do this will result in a non-negotiable 10% point deduction).
- A meta-rubric is provided on the website, under the Homework page. These are not customized for each assignment but the principles will apply generally.
- No homework assignments will be dropped, but you can turn in assignments within 24 hours of the due date with a 50% penalty. If you need a further accomodation for a particular assignment, talk to Prof. Srikrishnan ***before the due date.*** Requests for extensions made after the due date will only

be considered under extraordinary and unexpected circumstances. Technical challenges submitting assignments are not acceptable reasons for extensions to be granted, and late penalties will apply.
- **Your submitted homework must stand on its own**! We cannot grade you on the basis of information which was not included in the submitted assignment. While regrade requests should include a justification for why your grade is incorrect, we will not consider explanations or additional reasoning outside of the submission.

No homework assignments will be automatically dropped.

Term Project

Throughout the semester, students will apply the concepts and methods from class to a data set of their choosing. If a student does not have a data set in mind, we will find one which aligns with their interests.

The term project can be completed individually or in groups of 2. There will be three deliverables throughout the semester:

- A proposal (no more than 2 pages with 11 point font, 1 inch margins, not including figures or references) including:
  - The underlying science question for your project and any associated hypotheses;
  - The dataset(s) you will analyze and use to test your hypotheses;
  - Statistical model(s) for the hypotheses and your planned strategy for analysis.
- An interim report (no more than 2 pages with 11 point font, 1 inch margins, not including figures or references) summarizing progress to date, including changes from the original proposal or challenges faced and plans to overcome them.
- A final report. The report should be no more than 5 pages (11 point font, 1 inch margins), not including references and figures. More details and rubrics will be provided later in the semester.

Late Work Policy

In general, late work can be submitted up to 24 hours late at a 50% penalty, and will not be accepted after that point. This policy may seem strict, but allows for prompt release of solutions and discussion of assignments. Please reach out *as soon as possible* (ideally before the due date) if legitimate circumstances emerge which prevent you from submitting work within 24 hours of the due date; we will make accomodations for approved reasons, which might included a limited extension or dropping the assignment.

Regrade Requests

Regrade requests can be submitted up to one week after the graded work is released on Gradescope.

All regrade requests must include a **brief** justification for the request or they will not be considered. Good justifications include (but are not limited to): - *My answer agrees with the posted solution, but I still lost points.* - *I lost 4 points for something, but the rubric says it should only be worth 2 points.* - *You took points off for something, but it's right here.* - *My answer is correct, even though it does not match the posted solution; here is an explanation.* - *There is no explanation for my grade.* - *I got a perfect score, but my solution has a mistake* (you will receive extra credit for this! see below!) - *There is a major error in the posted solution; here is an explanation* (full credit for everyone, but Prof. Srikrishnan will decide what constitutes a "major error"! see below!).

! We Can Only Grade What You Submitted

All regrades will be assessed based only on the submitted work. You cannot get a higher grade by explanating what you meant (either in person or online) or by adding information or reasoning to what is submitted after the

fact. The goal of the regrade is to draw attention to a potential grading problem, not to supplement the submission.

The first regrade request for any submission will be handled by the person who graded that homework problem. The first regrade request for any exam submission will be handled by whoever graded that exam problem. If the submission was graded by the TA, additional regrade requests for the same submission will be handled directly by the instructor. Once Prof. Srikrishnan issues a final response to a regrade request, further requests for that submission will be ignored.

⚠ Regrade Requests Can Be A Gamble!

While you should submit regrade requests for legitimate errors, using them for fishing expeditions can also result in lost points if the TA or Prof. Srikrishnan decide that your initial grade was too lenient or if additional errors are identified.

What If I Find A Different Type of Mistake?

- If you submit a regrade request *correctly* reporting that a problem was graded too leniently — that is, that your score was higher than it should be based on the rubric — your score will be increased by the difference. For example, if your original score on a problem was 8/10 and you successfully argue that your score should have been 3/10, your new score will be 13/10. However, don't fish — your grade might be lowered if the TA finds an independent mistake while regrading.
- If a significant error is discovered in a posted homework solution or in the exam solutions, everyone will in the class will receive *full* credit for the (sub)problem. Prof. Srikrishnan will decide what is "significant".

Tentative Schedule

Topic	Date	Day	Title	Deadline(s)
Introduction				
Introduction	January 21	Wed	Class Overview	
Introduction	January 23	Fri	Probability Review	
Probability Models	January 26	Mon	Exploratory Data Analysis	
Probability Models	January 28	Wed	Principles of Data Visualization	
Probability Models	January 30	Fri	Data Visualization Discussion	
Regression				
Linear Regression	February 2	Mon	(Multiple) Linear Regression	
Linear Regression	February 4	Wed	Maximum Likelihood Estimation	
Linear Regression	February 6	Fri	MLE Uncertainty and Fisher Information	HW 1 Due
Model Evaluation	February 9	Mon	Graphical Checks	
Model Evaluation	February 11	Wed	Cross-Validation	

Topic	Date	Day	Title	Deadline(s)
Model Comparison	February 13	Fri	Hypothesis Testing Introduction	Quiz 1
	February 16	Mon	February Break	
Model Comparison	February 18	Wed	Null Hypothesis Testing	
Model Comparison	February 20	Fri	Information Criteria	HW 2 Due
Time Series	February 23	Mon	Autocorrelations	
Time Series	February 25	Wed	Time Series Models	
Time Series	February 27	Fri	Time Series Examples	
Model Calibration	March 2	Mon	Model-Data Discrepancy	
Model Calibration	March 4	Wed	Model Calibration	
Simulation Methods				
Introduction	March 6	Fri	Simulation Introduction	Quiz 2
Monte Carlo	March 9	Mon	Random Variate Generation	Lab 4 Due
Monte Carlo	March 11	Wed	Monte Carlo: Examples and Theory	
Monte Carlo	March 13	Fri	Monte Carlo: Convergence and Advanced Methods	
The Bootstrap	March 16	Mon	The Bootstrap Principle	Lab 4 Due
The Bootstrap	March 18	Wed	Types of Bootstraps	
The Bootstrap	March 20	Fri	Bootstraping Structured Data	Project Proposal Due
The Bootstrap	March 23	Mon	Mechanisms of Missingness	Lab 5 Due
Missing Data	March 25	Wed	Multiple Imputation	
Generalized Linear Models				
Introduction	March 27	Fri	Imputation Examples	Quiz 3
	March 30	Mon	Spring Break	
	April 1	Wed	Spring Break	
	April 3	Fri	Spring Break	
Logistic Regression	April 6	Mon	Logistic Regression	
Logistic Regression	April 8	Wed	Scoring Rules and Calibration	
Logistic Regression	April 10	Fri	Logistic Regression As GLM	Interim Report Due
Generalized Linear Models	April 13	Mon	Modeling Counts	

Topic	Date	Day	Title	Deadline(s)
Generalized Linear Models	April 15	Wed	Overdispersed and Zero-Inflated Models	
Extreme Values				
Introduction	April 17	Fri	Extreme Values	HW 5 Due and Quiz 4
Block Maxima	April 20	Mon	Block Maxima and GEVs	Lab 6 Due
Block Maxima	April 22	Wed	Return Periods	
Block Maxima	April 24	Fri	Nonstationary Extremes	
Peaks Over Thresholds	April 27	Mon	Peaks Over Thresholds and GPDs	Lab 6 Due
Peaks Over Thresholds	April 29	Wed	Clustering Exceedances	
Peaks OVer Thresholds	May 1	Fri	Nonstationary GPDs	Quiz 5
Class Wrap-Up				
Class Wrap-Up	May 4	Mon	Class Wrap-Up	HW 6 Due