University of Washington

AMATH 482

Computational Methods for Data Analysis

Winter 2020

Instructor: Craig Gin (cgin@uw.edu)

Lectures: MWF 9:30-10:20 am in MEB 238

Office Hours: Tuesday 9-11 am and Wednesday 3-5 pm in Lewis 211 or by appointment

TA: Iris Shi

TA Office Hours: Thursday 2-4 pm in Lewis 129

Course Description: Exploratory and objective data analysis methods applied to the physical, engineering, and biological sciences. Brief review of statistical methods and their computational implementation for studying time series analysis, spectral analysis, filtering methods, principal component analysis, orthogonal mode decomposition, and image processing and compression. Prerequisite: AMATH 301; either AMATH 352, MATH 136, or MATH 308. Offered: W.

Web Page: `https://canvas.uw.edu/courses/1352847`
Check the canvas course page regularly. Homework assignments, course announcements, and grades will be posted there.

Communication: The main source of communication for this course will be Canvas.

- **Course Announcements:** The instructor will regularly post course announcements with information about what was done in class as well as upcoming due dates and scheduling changes. You are responsible for reading all of the announcements.
- **Discussion Board:** This term we will be using Piazza for class discussion. The Piazza discussion board is a great place to ask questions about the course material or discuss homework problems. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. You are encouraged to answer each other's questions, but the instructor will also regularly answer questions on the discussion board. While discussions about the homework are encouraged on the discussion board, no solutions should be posted. If a post contains code that can be copied and used for a homework submission, the post will be deleted.

  `https://piazza.com/washington/winter2020/amath482a/home`
- **Email:** Email is the best way to reach me if you have any other questions or concerns. When you send an email, please include your full name and course number.

Textbook: Data-Driven Modeling & Scientific Computation: Methods for Complex Systems & Big Data by J. Nathan Kutz.
The textbook is not required but is a great reference to have for the future. The content of this course is completely contained within Part III of the textbook. The relevant sections are contained in the Course Notes posted on the course Canvas page.

Grading and Homework Write Ups: Your grade in this course will be completely determined by homework. There are no exams. There will be 5 homework assignments throughout the quarter that will be equally weighted (each worth 20% of your grade). No grades will be dropped. Assignments will be posted to Canvas. A separate document with detailed instructions about homework submissions and grading will be posted on Canvas.

Computing Policy: MATLAB will be used heavily in this course so you will need access to it. MATLAB licenses for students can be obtained for free from UWare. If you do not have a computer that can run MATLAB, you can rent a computer from the Student Technology Loan Program. You can also use one of the computer labs on campus that has MATLAB. Ask the instructor for more information.

Attendance: Although attendance will not be taken, I strongly encourage you to attend and participate in every lecture. This is one of the best ways to ensure success in the course.

Late Work and Make Up Policy: Late work will not be accepted unless class is missed by an unavoidable cause (`http://www.washington.edu/admin/rules/policies/SGP/ScholRegCH112.html#1`). Proper documentation must be provided. If possible, advance notice should be given to the instructor. If advance notice cannot be given, you must notify the instructor as soon as possible.

Academic Misconduct: All students are expected to abide by the University's Student Conduct Code (see `http://www.washington.edu/cssc/for-students/student-code-of-conduct/`) including the avoidance of academic misconduct as defined in Student Governance Policy, Chapter 209 Section 7.C (`http://www.washington.edu/admin/rules/policies/SGP/SPCH209.html#7`). Any instances of academic misconduct will be reported.

Access and Accommodations: Your experience in this class is important to me. If you have already established accommodations with Disability Resources for Students (DRS), please communicate your approved accommodations to me at your earliest convenience so we can discuss your needs in this course.

If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), you are welcome to contact DRS at 206-543-8924 or uwdrs@uw.edu or disability.uw.edu. DRS offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and DRS. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law.

Religious Accommodations: Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at Religious Accommodations Policy (`https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/`). Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form (`https://registrar.washington.edu/students/religious-accommodations-request/`).