FISH 553 Introduction to R Programming

Syllabus Autumn 2018

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Office hours: Wednesdays, 11:30 am – 12:30 pm; FISH 336B

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Office hours: Tuesdays, 2:00 pm – 3:00 pm; FISH 358B

Course overview

Combined Class/Lab: Tuesdays and Thursdays 10:30 – 12:20 pm
Location: MGH 030

Important Note:
Ten combined lectures/labs from 1 November to 6 December.

Course objective

This course teaches graduate students how to program in the statistical computing language R.

Required readings

Course handouts and lectures. No required textbooks.

Evaluation and grading

Credit/no credit, 2 credits. Credit awarded based on the completion of all assigned weekly homework exercises, which will average 4 hours per week.

Lectures/In-class exercises: The course will consist of two 1 hour and 50-minute combined lectures and laboratory work per week. Lectures will be primarily PowerPoint based and made available on Canvas before class for downloading and reviewing. Bringing your own computer is acceptable and encouraged. Alternatively, the computers in MGH 030 should be sufficient for viewing lectures. If using the lab computers, please note that is imperative to bring a storage device (e.g., a USB drive), use cloud-based storage (e.g., Google Drive), or alternate method of your choosing to save your notes and work! Files saved locally to these lab computers are periodically deleted throughout the quarter.

Assignments: There are four assignments in this course. All assignments, in the form of R scripts, will be uploaded to Canvas by 5pm. **The due dates are as follows: November 9, November 16, November 30, and December 7.**

Attendance: Attendance is expected for every lecture. Regular attendance and participation are essential for a good performance in this course.

Online tools: There is a Canvas website that will be used to disseminate resources for the class. To access materials on Canvas, you will need your UW NetID and password. A Canvas email list will be used for notifications. Please check your UW email regularly for course announcements.

Academic Integrity: Trust between student and instructor is of paramount importance in academic settings. Plagiarism, cheating, and other misconduct are serious violations of the University of

Washington Student Conduct Code (WAC 478-120) and your personal contract as a student. I expect that you will know and follow the university's policies on cheating and plagiarism. Please review the College of the Environment website on academic integrity so that you are clear on what constitutes academic misconduct. Any suspected cases of academic misconduct will be handled per University of Washington regulations. For more information, see the College of the Environment Academic Misconduct Policy and the University of Washington Community Standards and Student Conduct website. Be advised that as an instructor at the UW, I have the *responsibility* to notify University Conduct committees about *any* suspected student misconduct.

Disability Accommodations: It is crucial that all students in this class have access to the full range of learning experiences. At the University of Washington, it is the policy and practice to create inclusive and accessible learning environments consistent with federal and state law. Full participation in this course requires: 1) the ability to attend two 1 hour and 50-minute lectures per week with 40 other students; 2) participate in small group discussions on during in-class exercises, and 3) make short presentations that synthesize small group discussions and/or results of in-class exercises to the class orally.

If you anticipate or experience barriers to your learning or full participation in this course based on a physical, learning, or mental health disability, please immediately contact the instructor to discuss possible accommodation(s). A more complete description of the disability policy of the College of the Environment can be found here. If you have, or think you have, a temporary or permanent disability that impacts your participation in any course, please also contact Disability Resources for Students (DRS) at: 206-543-8924 (V), 206-543-8925 (TDD), uwdss@uw.edu, http://www.uw.edu/students/drs.

Course schedule

*** Lecture topics are subject to change based upon the needs/interests of the enrolled students.**
**** Note: there is no class meeting on November 22, 2018 in observance of Thanksgiving.**

Date	Lecture
November 1, 2018	Lecture 1. Good programming principles
November 6, 2018	Lecture 2. Debugging code and big projects
November 8, 2018	Lecture 3. Loops, if-then-else, while statements
November 13, 2018	Lecture 4. Introduction to maximum likelihood estimation
November 15, 2018	Lecture 5. Minimizing non-linear functions use mle & optim
November 20, 2018	Lecture 6. Likelihood profiles and confidence intervals
November 27, 2018	Lecture 7. Bootstrapping, resampling, simulation-estimation
November 29, 2018	Lecture 8. Writing faster R code, editing existing R functions
December 4, 2018	Lecture 9. Large projections, pitfalls in R
December 6, 2018	Lecture 10. Data wizardry: tools for data summarization and manipulation