

MATERIALS FOR ARE212

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For class-related conversations, please go to edstem.org.

1. GENERAL POLICIES

1.1. Grading.

1.1.1. *Final Exam*. The final exam will be “take-home”, and be made available by 11am on the day scheduled for the final by campus (if there is a **consensus** that an earlier date is preferable then we can reschedule). You will have 24 hours to complete the final.

1.1.2. *Groups*. You should regard yourself as a member of a **group**, and your group will be responsible for working together on certain assignments. Group sizes should be between 3–6 (inclusive).

Date: March 10, 2024.

1.1.3. *Assignments*. The point of the assignments is about learning to think critically about issues involving economics, estimation, and inference.

We will ask you to complete an assignment every 2–3 weeks. We expect you to work on these with others in your group. Your **group** should turn in *one* set of notes and proposed solutions. The problem sets will feature two different kinds of problems.

- (1) Exercises These are called *exercises* because they are meant more as tests of comprehension than as more difficult *problems*.
- (2) Problems *Problems* are meant less as checks on comprehension and more the part of the assignment that involves more critical thinking. “Problems” may not have a “right” answer (though there will always be many wrong answers).
- (3) Discussion Rather than grading the assignments, we’ll find a time to have a structured discussion of the exercises and problems. At least one member of each group should come to the discussion prepared to present and defend your group’s proposed solutions to each exercise & problem before the class.

1.2. Readings.

- “Hansen” refers to Bruce Hansen’s Econometrics Textbook. This was recently published by Princeton University Press, and belongs on your bookshelf. Hansen was generous in sharing drafts of his manuscript on-line, and if you don’t yet have a hard copy you should be able to find one of these.
- Other readings will be added topic by topic (usually these will be available electronically).

2. PYTHON

It’s critical to note that we expect you to have or develop some fluency in the programming language **python**. There are copious useful on-line resources for this; the D-lab offers frequent workshops and consulting; and Aaron Watt & Lucy Hackett have developed an ARE212 specific Python Bootcamp ([datahub][github]).

3. TOPICS

Discussion of topics for 2nd half of course:

- 3.1. **Multiple Equation Models.**
- 3.2. **Some Non-parametrics.**
- 3.3. **Causality & Correlation.**

- 3.4. Identification & Instrumental Variables.
- 3.5. Generalized Method of Moments.
- 3.6. Discrete Choice & Maximum Likelihood.
- 3.7. Resampling & the Bootstrap.
- 3.8. Cross-Validation & Other Ideas from Machine Learning.