SYD 5135 | Techniques of Demographic Analysis

Course Information
- **Course Hours:** 9:00 - 11:30 Thursdays
- **Course Meeting Location:** Bellamy 635
- **Credit Hours:** 3 hours
- **Prerequisites:** None

Course Description
This course covers a range of important techniques used in analyzing demographic data, including age standardization of rates, component decomposition of differences in rates, additive versus multiplicative models of competing risks, construction of cohort versus period life tables with extensions to multi-state processes, techniques of population projections, stable population theory and more general extensions to unstable populations.

Course Instructor
Elwood Carlson
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Office Hours: Weekdays 8-9:00AM
Emails will be responded to within 24 to 48 hours.

Learning Objectives
Upon successful completion of this course you should be able to explain why the most important and frequently-used tools of demographic analysis were developed (that is, what problems or methodological issues they were designed to solve), how these techniques are actually performed in terms of specific calculations, and how to interpret and present the results of demographic analysis. The course aims to prepare you for professional careers in the analysis of demographic data and the application of results to practical contemporary problems.

Student Responsibilities
*Class attendance and participation.* You are expected to be present at each class meeting and to be prepared by reading any assigned readings before class. Do not enter class late or leave early, unless you clear special circumstances with the instructor in advance. If you must miss a class, please contact me—in advance of class, if possible. Since we only meet once each week, you may NOT miss more than two weekly meetings and still get graduate credit for this course. If you think you will be absent more than twice, you should not take this course.

*Weekly problem sets:* Every week the course meeting will focus lecture and discussion on a set of specific analytic topics. A problem set will be discussed in class in connection with these topics, in which course participants will be required to perform their own hands-on calculations and analysis using data provided. These calculations and written analysis of the results reinforce the material covered in class, to develop both proficiency in the analytic techniques themselves and the ability to explain how and why these techniques are applied, and how to interpret the
results. The course grade is calculated by summing the points awarded for the complete set of weekly problem sets. In addition there is a cumulative online final exam, in which you will demonstrate your mastery of selected techniques from throughout the course as part of an integrated assignment. This final exam takes the place of methodological questions on the Demography area doctoral comprehensive examination in sociology, allowing that examination to concentrate on substantive questions of theory and research rather than methodological concerns.

**Grading Policy**
You must earn at least 80% of the total possible points in order to pass with a grade of B and 90% or more of the possible points for a grade of A in this seminar. Less than 80% of the total possible points will result in a grade of C, which is a failing grade at the graduate level.

**Technology Requirements**
Course content is accessible through Canvas. Students will need to be able to write and upload assignments, post discussion questions, and take assessments. Students should have access to high-speed internet and updated software. Mobile devices may be used to view course content, upload assignments, and take assessments as determined by the instructor. To view the most current technology requirements, visit the [FSU Canvas support site](https://canvas.fsu.edu).

**Canvas Support**
Need help with Canvas? Contact FSU Canvas Support:
**Email:** help@campus.fsu.edu
**Phone:** (850) 644-8004
**Website:** [distance.fsu.edu/canvas](https://distance.fsu.edu/canvas)
**Hours:** 8am to 5pm, Monday - Friday

**University Policies**

**University Attendance Policy**
Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

**Academic Honor Policy**
The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and... [to] strive for personal and institutional integrity at Florida State University." (For more details see the [FSU Academic Honor Policy and procedures for addressing alleged violations](https://fsuacademichonorpolicy.fsu.edu).)

**Americans With Disabilities Act**
Students with disabilities needing academic accommodation should (1) register with and provide documentation to the Student Disability Resource Center and (2) bring a letter to the instructor indicating the need for accommodation and what type. Please note that instructors are not allowed to provide classroom accommodation to a student until appropriate verification from the Student Disability Resource Center has been provided. This syllabus and other class materials are available in alternative format upon request. For more information about services available to FSU students with disabilities, contact the:
Free Tutoring from FSU
On-campus tutoring and writing assistance is available for many courses at Florida State University. For more information, visit the Academic Center for Excellence (ACE) Tutoring Services' comprehensive list of on-campus tutoring options - email: tutor@fsu.edu. High-quality tutoring is available by appointment and on a walk-in basis. These services are offered by tutors trained to encourage the highest level of individual academic success while upholding personal academic integrity.

Syllabus Change Policy
"Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice."

Course Materials
Week 1 - Population Growth Rates
- Spreadsheet assignment on population growth rates

Week 2 - Age-Specific Rates and Probabilities
- Preston et al. Chapter 2
- Spreadsheet assignment on standardizing rates

Week 3 - Life Table Construction
- Preston et al. Chapter 3
- Spreadsheet assignment on life table construction

Week 4 - Life Table Decomposition
- Spreadsheet assignment on decomposing life expectancy

Week 5 - Multivariate Survival Time Models
- Stata + Excel Spreadsheet assignment on non-proportional hazards
Week 6 - Multiple Decrement Processes
- Preston et al. Chapter 4
- Spreadsheet assignment on causes of death

Week 7 - Fertility and Reproduction
- Preston et al. Chapter 5.
- Spreadsheet assignment on fertility measures

Week 8 - Population Projection
- Preston et al. Chapter 6

Week 9 - The Stable Population Model
- Preston et al. Chapter 7
- Spreadsheet assignment on intrinsic growth/stable population

Week 10 - Demographic Relations in Non-stable Populations
- Preston et al. Chapter 8
- Spreadsheet assignment on variable-'r' for marital survival
- Spreadsheet assignment on variable-'r' for incomplete reporting

Week 11 - Modeling Age Patterns of Vital Events
- Preston et al. Chapter 9
- Spreadsheet assignment on modelling mortality at the oldest ages
- Spreadsheet assignment on interpolating age-specific fertility schedules

Week 12 - Methods for Evaluating Data Quality
- Preston et al. Chapter 10
- Spreadsheet assignment on Brass techniques

Week 13 - Indirect Estimation Methods
- Preston et al. Chapter 11
- Spreadsheet assignment on indirect mortality estimation
- Spreadsheet assignment on indirect fertility estimation

Week 14 - Multistate Increment-Decrement Processes
- Preston et al. Chapter 12
- Spreadsheet assignment on multistate increment-decrement life tables

Final Examination - Examination Due Thursday, April 30 by 12 PM.