Syllabus for Demography 110 and for Demography 210
Fall 2017

Instructor:
Prof. Robert Chung
Office hours: W 10:30 am – 11:30 am (tentative)
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Class meetings for Demography 110:
Lectures: Tuesdays and Thursdays, 3:30 pm - 5:00 pm
145 Moffitt
In past years, students on the waiting list have almost always been able to enroll.

Description:

Demography 110 is an introduction to the methods and models used in the study of populations, their structure, and how they change. Beginning at a simple conceptual level, over the course of one semester you will learn how many of the essential concepts of demography came to be. You will learn how demographers measure population growth, mortality, fertility, marriage, and age structure. At the end of the course you will be able to interpret, construct, and calculate most of the common measures of the life course. You will learn how to do population projections, to understand risk and insurance, how to examine historical trends in marriage, and how to calculate the change in life expectancy if you could cure cancer. Because most students have little or no prior exposure to demographic methods and models before this class, there are no specific pre-requisites other than high-school level algebra. That said, as with almost all other methods and modeling courses, if you have more mathematics than that you will be more comfortable with the topics and concepts introduced and discussed.

Demography is a multi-disciplinary field and students majoring in Anthropology, Applied Math, Development Studies, Economics, Public Health, Public Policy, Sociology, and Statistics have taken this course and reported that it has helped them in their own fields. For some programs Demography 110 can satisfy the "methods" requirement for the major – check with your department.

Textbook (required) for both Demog 110 and 210:

Wachter, KW. 2014. Essential Demographic Methods.

Suggested references only for Demography 210 students:

Preston, S; P. Heuveline, and M. Guillot. 2001. Demography
Keyfitz. N.; and H. Caswell. 2005. Applied Mathematical Demography. 3rd. Ed.

Both of these suggested books are available in the library. You don't need to purchase them but it will be good to scan through them when you do your 210 semester projects. Preston et al. is a straightforward no-nonsense textbook with lots of formulas but not nearly as much exposition as Wachter. Some parts of Keyfitz and Caswell will be more advanced than what we do in 210 but several of the approaches used in the course were inspired by that book. If you find yourself intrigued by something I've said in class and you want to delve a little more deeply, it could be a good place to start.

Other material (required):

You will need to have a calculator for the mid-term and final exam but you will **not** be allowed to use laptops or phones as your calculator. You should therefore have and know how to use a handheld calculator. Be sure to practice using it with your homework assignments -- you don't want the midterm to be the very first time you use it. You do not need a fancy graphing calculator (though if you have one you may use it): at a minimum, it should have logarithmic and exponential functions. You should be able to find a cheap calculator with these minimal features for $10 - $15. You are welcome to use laptops or recording devices during lecture – but, in general, learning studies have shown that **students acquire the material better if they take notes by hand and then review or re-copy them after class.**

Grading:

There will be weekly problem sets, exams, and a semester project. In years past, we have had about 10 or 11 problem sets. Of the homework problem sets, the lowest single score received during the semester has been dropped. Homework will generally be due on Thursdays (unless specific exceptions are made). Because we have a reader/grader for the course, late homework cannot be accepted once the assignments have been passed on to the grader. The midterm and project have each been weighted in the final course grade as equivalent to two homework problem sets; the final exam has been weighted as equivalent to twice the midterm (or, four times a single problem set). In years past, there has been a high correlation between performance on the problem sets and performance on the exams, so you should try to do your best on the problem sets.

This semester I have arranged for the lectures to be recorded, including the material displayed on the screen. These lectures will be posted on the bCourses site as soon as available after each lecture.

Demography 210 is a graduate-level course that parallels Demography 110 but at a deeper level. Although not strictly required, I **highly** recommend that you take 110 either prior to or concurrently with 210. Even if you do not take 110 for credit, it can be helpful to sit in and listen to the lectures. In essence, the background, motivation, and easier explanations will be given in 110 while 210 will cover more topics at a deeper level – and more quickly. The textbook is the same as for 110.

Discussion List and office hours:

I am setting up a discussion list on Piazza so you can ask (or answer!) questions, and form study groups. Because the class is large please use the discussion list as the primary means to clarify your questions or concerns. If you have a question about the course or the problem sets, it is likely others have the same question so it would be useful to ask on Piazza first. Denys and I will regularly monitor the Piazza discussion list.

There is no official section meeting for this course. However, we have a GSI, Denys Dukhovnov, who will be holding regular office hours in 2232 Piedmont.

Currently, Denys's office hours are scheduled for Monday 12:30 pm - 1:30 pm and Tuesday 2:00 pm – 3:00 pm.

Tentatively, I will hold office hours on Wednesdays, 1030-1130. E-mail me for an appointment if you need to see me outside of that time.

Pre-requisites:

There are no formal pre-requisites for Demography 110. It is **possible** to do well with only high-school algebra but the class will **certainly** be easier the more math you have. For Demography 210 you will **probably** get much more out of the course if you have had some calculus.

Topics (both Demography 110 and 210):

Topics may be shuffled as needed but a tentative schedule is:

Week
   I -- The balancing equation for populations

  II -- Geometric and exponential growth
      -- Cohorts, periods, and Lexis diagrams
      -- Cohort survival

  III -- The cohort life table
      -- Probabilities of dying and probabilities of surviving

  IV -- Annuities and insurance
       -- Cohort fertility, parity, and the NRR

   V -- Population projection
       -- Leslie Matrices

  VI -- Period fertility, NRR, GRR, TFR
       -- Age-Standardized Rates

VII -- MID-TERM EXAMINATION AROUND HERE (+/- a week or so)
     -- Period Lifetables

VIII -- Model Lifetables
     -- Model Lifetables, continued

IX -- Parity-progression
     -- Cause-Specific Mortality

X -- Marriage, divorce, and remarriage
     -- The Singulate Mean Age at First Marriage

XI -- Synthetic Cohorts
     -- Consequences of Unchanging Rates

XII -- Stable Age Pyramids and Lotka's r
     -- Natural Fertility

XIII -- Princeton Fertility Indices
     -- Coale-Trussell M and m

XIV -- Thanksgiving week. Topic TBD

XV -- Project review
     -- Review

Important dates to keep in mind for 2017:

24 August: First day of class
1 September: Last day for undergraduates to drop a class without a fee ($10 after this)
4 September: Labor Day
approximately first week of October, give or take: Mid-term exam
22 September: Deadline for undergraduates to add/drop classes (even with $10 fee)
27 October: Last day to change grading option
23 November: Thanksgiving Day
30 November: Last day of class
15 December: Final Exam, 7-10pm