

**Sociology 2230**  
**Techniques of Demographic Analysis**  
**Fall 2008**  
**22 August 2008**

**Maxcy 108 Tue 9-12AM**  
**Instructor: Michael J. White**

Goals. This course is designed to introduce students to basic concepts of demographic measurement and modeling used to study changes in size, composition, and distribution of population. The course covers basic population measures of mortality, fertility, migration, and health; life table construction; methods of survival analysis, and population projection. Several newer applications are also included.

Audience. The course is of value to demography trainees in all disciplines. Others with population interests will find the course material valuable, since population researchers take care to consider issue of timing and exposure to events, composition, and data quality. More generally Soc 2230 introduces the conscientious student to a variety of practical techniques for analyzing data throughout the social sciences. Undergraduates who wish to enroll in this course must obtain the written permission of the instructor.

Prior Preparation. There are no specific course prerequisites for Soc 2230. Presentations rely on algebra. Background in calculus will enhance the appreciation of the material. It is assumed that students are up to date on access and processing of electronic research material, both through the course website, and other resources (Web of Science, JSTOR, etc.). The course will make significant use of spreadsheet software. In consultation with the instructor, student will be encouraged to pursue learning at the level technical expertise.

Philosophy. The field of demography has been experiencing an active discussion about the proper set of methods for the next generation of population studies. This discussion reflects the significant changes in sources of data, ways of analyzing those data, and the models upon which social and health scientists draw to understand population phenomena. The syllabus reflects my current thinking about key demographic methods needed by up-and-coming population scientists. Soc 2230 not only includes traditional methods, such as sources of data, errors, calculation of basic rates, life tables, standardization and some formal analysis of demographic dynamics, but also recognizes the extensive contemporary reliance on microdata and statistical analysis, the growth of new subjects (spatial structures, family dynamics), and the increased interest in the use of qualitative methods. Core methods readings are generally from the texts with supplementary material from the literature illustrating or extending the technique. Soc 2230 will bring in information from the weekly PSTC colloquium series, as well as current news items illustrating demographic methods or related substantive results of note.

Requirements and Grading. The course is mandatory S/NC. Still there is regular work that is part of the course progression. Problem sets will account for 80% of the course evaluation. A research "note" paper will account for 20% of the evaluation. The course consists of weekly assigned readings with accompanying in-class lectures. Many weeks include a substantive reading assignment that will be the focus of discussion.

Supplementary sessions (to be scheduled) will include special topics in specialized software applications (NVIVO, Excel graphing, etc).

Course Materials. This course makes use of a course website.. Required readings will be listed there, and links also available to course material, as appropriate. Two textbooks are on order at the Brown Bookstore:

Preston, S.H., P. Heuveline and M. Guillot. 2001. *Demography: Measuring and Modeling Population Processes*. Blackwell Publishers Inc, Oxford (indicated in the reading list as "PHG"). This is a now-standard text that contains useful formal demographic development of material. It emphasizes, fertility, mortality, and age structure. (Indicated in the reading list as "PHG").

Rowland, DT *Demographic Methods and Concepts* (Oxford, 2003). This methods text probably is more comprehensive but less technical than PHG. It contains a series of spreadsheet modules on a supplementary CD. (Indicated in the reading list as "Rowland").

<http://www.oup.com/uk/orc/bin/9780198752639/>

In addition, you may wish to consult three other treatments. All are useful in their own way, and they take up population methods from different viewpoints. They will be available on reserve.

Poston & Micklin, *Handbook of Population*. (Springer, 2005) This edited volume contains comprehensive overviews of major topics in demography. Although it emphasizes substantive topics, several chapters treat methodological issues. (Indicated in the reading list as P&M.) Also in paper and an e-book via Josiah.

Siegel and Swanson. *Methods and Materials of Demography* (Elsevier 2004) This is the latest version of a long-standing text in US demography. It is quite comprehensive in treatment.

Newell, Collin, *Demographic Methods and Models*. This is a handy, less-expensive treatment of demographic material, with most standard methods represented. (Indicated in the reading list as "Newell").

Finally, available online at the Population Reference Bureau, is a handy reference:

Haupt & Kane *The Population Handbook*,

[http://www.prb.org/pdf/PopHandbook\\_Eng.pdf](http://www.prb.org/pdf/PopHandbook_Eng.pdf)

## Schedule of Meetings and Topics [SUBJECT TO REVISION]

### **9 SEP:** 1. BASIC CONCEPTS; CURRENT ISSUES

RATE VS RATIOS, PERSON-YEARS; COHORT VS. PERIOD  
DEMOGRAPHIC TECHNIQUES AND CURRENT POPULATION DEBATES  
PHG, CH 1 "Basic Concepts and Measures"  
P&M, Prologue "The Demographer's Ken: 50 Years of Growth and Change."  
Butz, W.P. and B. B. Torrey. 2006. "Some Frontiers in Social Science." *Science* 312  
(30 June 2006): 1898-1899.  
Lee, R. "Demography Abandons its Core" (unpublished ms on website)

[TO BE RESCHEDULED:]

### **16 SEP:** 2. DATA SOURCES; AGE STRUCTURE

CENSUSES, SURVEYS, REGISTERS, SURVEILLANCE SYSTEMS  
BASIC MEASURES OF POPULATION GROWTH AND STRUCTURE; AGE-SEX PYRAMIDS  
INTRO TO ETHICAL ISSUES IN COLLECTING DEMOGRAPHIC DATA  
PHG CH 2  
Rowland, CHS 1-3  
P&M, Ch 1 "Age and Sex."  
Vaupel, J and E. Loichinger. 2006. "Redistributing Work in Aging Europe." *Science*  
312 (30 June 2006): 1911-1913.  
Prewitt, K 2004. "What if we gave a census and no one came?" *Science* 304 (4 June  
2004): 1452-3.  
Rendall, MS and others. 1999 "Incomplete Reporting of Men's Fertility in the United  
States and Britain" *Demography*, 36: (Feb): 135-144

### **23 SEP:** 3. LIFE TABLE I: BASIC FUNCTIONS

SINGLE DECREMENT LIFE TABLE;  
BASIC COLUMNS AND RELATIONSHIPS  
PHG CH 3  
Rowland, Chs 6,8  
Eloundou-Enyegue, P. 2004 "Pregnancy-Related Dropouts and Gender Inequality in  
Education: A Life-Table Approach and Application to Cameroon."  
*Demography* 41:509-528

### **30 SEP:** 4. LIFE TABLES WITH MICRO- DATA

STATA APPLICATION  
LINK BETWEEN MICRO AND MACRO ANALYSIS  
Goldstein, J.R. 1999. "The Leveling of Divorce in the United States" *Demography*,  
36: 409-414.  
Hogan, Dennis P. and Frances K. Goldscheider. 2003. "Success and Challenge in  
Demographic Studies of the Life Course." In *Handbook of the Life Course*,  
edited by J. Mortimer and M. Shanahan. New York: Plenum.

**7 OCT: 5. LIFE TABLE EXTENSIONS:**

MULTIPLE DECREMENT (CAUSE-DELETED) LIFE TABLE  
HEALTH AND MORBIDITY APPLICATIONS  
PHG CH 4

Bongaarts, J 2006. "How Long Will We Live?" *Population and Development Review* 32: 605–628.

Bloom, D. and D. Canning. 2000. "The Health and Wealth of Nations" *Science* 287:1207-1209.

**14 OCT: 6. MEASURING NUPTIALITY AND FERTILITY**

SMAM, CBR, GFR, NRR  
INTERNATIONAL VARIATION IN FERTILITY SCHEDULES  
PHG CH 5

Rowland, CH 7

Frejka, T. G. Calot. 2001. "Cohort Reproductive Patterns in Low-Fertility Countries." *Population and Development Review* 27 (March): 103-132.

Mensch BS, Grant MJ, Blanc AK. 2006. "The changing context of sexual initiation in sub-Saharan Africa." *Population and Development Review* 32 (Dec): 699-727

**21 OCT: 7. FAMILY AND HOUSEHOLD STRUCTURE**

DEFINITION OF FAMILY AND HOUSEHOLD  
MEASURES OF FAMILY DYNAMICS: UNION, DISSOLUTION, FAMILY FORMATION  
APPLICATION OF STANDARDIZATION [STATA dstdize]

P&M Ch3 Waite, "Marriage and Family"

Short, S E.; F K. Goldscheider; B M. Torr 2006. "Less Help for Mother: The Decline In Coresidential Female Support For the Mothers of Young Children, 1880–2000" *Demography*, 43(Nov): 617–629

Lichter DT, Qian ZC, Mellott LM. 2006. „Marriage or dissolution? Union transitions among poor cohabiting women." *Demography* 43 (May): 2230-240

**28 OCT: 8. ANALYSIS OF POPULATION DISTRIBUTION AND MIGRATION**

SEGREGATION MEASURES  
GROSS AND NET MIGRATION  
MULTISTATE MODELS

PHG CH 6

Rowland CHS 10,11

P&M Ch 11 "Internal Migration" pp 326-339

White, M and A Kim. 2005. "Residential Segregation" *International Encyclopedia of Social Measurement*, Vol 3 (2005). pp. 403-9.

Iceland, J., D H. Weinberg, and E. Steinmetz. 2002. *Racial and Ethnic Residential Segregation in the United States, 1980-2000*. (U.S. Census Bureau, Special Report Series, CENSR # 3.) Ch 2 "Data and Methods" [or via course website]

**4 NOV: 9. POPULATION PROJECTIONS**

COHORT COMPONENT PROJECTION  
PHG CH 6

Rowland, CH 12

National Research Council (U.S.). 2000. *Beyond Six Billion : forecasting the world's population* (NRC Panel on Population Projections). pp 1-36. [or via website]

**11 NOV: 10. INTRO TO GIS (TBM)**

KEY CONCEPTS IN GIS

SOURCES OF GEOGRAPHICALLY REFERENCED DATA

VanWey L. et al. 2005. "Confidentiality and Spatially Explicit Data." *Proceedings of the National Academy of Sciences* 102:15337-15342.

OTHER READINGS TBA

**18 NOV: 11. MODEL SCHEDULES**

INTRO TO MODEL SCHEDULES

POPULATION MOMENTUM

PHG CHS 7, 9

Rowland, CH 9

INDEPTH Network. 2004 (Ghana) *INDEPTH model life tables for Sub-Saharan Africa*. (Aldershot, Hants, England ; Burlington, VT : Ashgate, 2004) [on reserve]

Hawkes, K and N Blurton-Jones. 2005. "Human Age Structures, Paleodemography and the Grandmother Hypothesis." In *Grandmotherhood* (Rutgers) [excerpt via website]

**25 NOV: 12. QUALITATIVE METHODS; DALY'S**

USE OF QUALITATIVE SOFTWARE; *NVIVO DEMONSTRATION*

DEMOGRAPHIC INFERENCE IN SMALL POPULATIONS

Knodel, John. 1997. "A Case for Nonanthropological Qualitative Methods for Demographers." *Population and Development Review* 23(4):847-853.

Kertzer, David I. 1997. "Qualitative and Quantitative Approaches to Historical Demography." *Population and Development Review* 23(4):839-846.

**2 DEC: 13. SPECIAL TOPICS & STUDENT PRESENTATIONS (TBN)**

**9 DEC: 13. SPECIAL TOPICS & STUDENT PRESENTATIONS (TBN)**

**PHG==Preston, Heuveline, and Guillot, *Demography***

**Rowland== Rowland, *Demographic Methods and Concepts***

**Newell==Newell, *Methods and Models in Demography***

**P&M==Poston & Micklin, *Handbook of Population***