**Social Behavioral Concentration**

The Social Behavioral concentration prepares students to apply social behavioral theory in the design and evaluation of health interventions as well as in the study of multilevel factors that affect health behaviors and outcomes. Students learn how to ask impactful questions, select optimal study designs and research methods to answer those questions, and disseminate their research findings to diverse audiences. Through research rotations and practica, students gain skills in primary data collection and secondary data analysis. Students in this concentration can tailor their coursework to develop expertise in the methodologies of greatest interest to them, including quantitative and qualitative methods.

**REQUIRED COURSEWORK FOR SOCIAL BEHAVORIAL CONCENTRATION**

(\* denotes that course is required for all DPOP PhD students)

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| **Topic/course** | **Credit hours** |
| \* DPOP 803. Social and Behavioral Aspects of Pharmaceutical Use | 3 |
| \* DPOP 806. Pharmaceutical Policy | 3 |
| \* DPOP 872. Proposal Writing | 3 |
| \* DPOP ---. Implementation Science (New course! Number to be determined) | 1.5 |
| \* PHRS 899. DPOP Student and Faculty Seminar | 4 |
| \* PHRS 801. Ethics | 1 |
| \* PHRS 994. Doctoral Dissertation | 6 |
| \* EPID 710. Fundamentals of Epidemiology | 5 |
| \* EPID 765. Methods and Issues in Pharmacoepidemiology | 3 |
| Scale Development Methods (HBEH 853) OR Patient Reported Outcomes Measurement and Application (HPM 794) | 3 |
| Statistics | 9 |
| Electives | 9 |
| **Minimum required total** | **51.5** |
| ***Strongly Recommended*** DPOP 870. Pharmaceutical Outcomes Research Methods for students in 2nd or 3rd year, focuses on the implementation of advanced methods in pharmaceutical outcomes research (Spring Semester Odd Years) | 3 |

**STATISTICS COURSES**

Students are required to take a minimum of 9 credit hours of statistical coursework. A number of departments offer statistical courses. Students are encouraged to review the following statistical series and select the series that is of greatest interest to them. Different departments teach using different statistical software programs, so students should consider this when selecting a statistical series.

**SOCIOLOGY**

* **SOCI 708. Statistics for Sociologists**(4 credits) Provides an introduction to probability theory, descriptive statistics, inferential statistics, and the algebra of expectations. Emphasis is on elements useful to research sociologists, including bivariate regression and correlation.
* **SOCI 709. Linear Regression Models** (4 credits) The course presents regression analysis and related techniques. The major topics are the assumptions of the regression model, dummy variables and interaction terms, outlier diagnostics, multicollinearity, specification error, heteroscedasticity and autocorrelation. The final section introduces path analysis, recursive models, and nonrecursive systems.
* **SOCI 711.** **Analysis of Categorical Data** (3 credits) Perquisite, permission of the instructor. Introduction to techniques and programs for analyzing categorical variables and nonlinear models. Special attention is given to decomposition of complex contingency tables, discriminant function analysis, Markov chains, and nonmetric multidimensional scaling.
* **SOCI 717.** **Structural Equations with Latent Variables** (3 credits) Prerequisite, [SOCI 708](https://catalog.unc.edu/search/?P=SOCI%20708) or permission of the instructor for students lacking the prerequisite. This course examines models sometimes referred to as LISREL models. Topics include path analysis, confirmatory factor analysis, measurement error, model identification, nonrecursive models, and multiple indicators.
* **SOCI 718**. **Longitudinal and Multilevel Data Analysis** (3 credits) Prerequisite [SOCI 709](https://catalog.unc.edu/search/?P=SOCI%20709) or [711](https://catalog.unc.edu/search/?P=SOCI%20711). This course provides an introduction to event history analysis or survival analysis, random effects and fixed effects models for longitudinal data, multilevel models for linear and discrete multilevel data, and growth curve models.

**EDUCATION**

* **EDUC 710. Statistical Analysis of Educational Data I** (4 credits). Studies descriptive and inferential statistics for educational research, including an introduction to fundamentals of research design and computer data analysis.
* **EDUC 784.** **Statistical Analysis of Educational Data II** (4 credits). Prerequisite, EDUC 710 or permission of the instructor. A linear model approach to the analysis of data collected in educational settings. Topics include multiple regression, analysis of variance, and analysis of covariance, using computer packages.
* **EDUC 884**. **Statistical Analysis of Educational Data III** (3 credits). An extension of the general linear model to analysis of educational data with multiple dependent variables, with computer applications.
* **EDUC 888. Introduction to Structural Modeling** (3 credits). Introduces structural equation modeling with both observed and latent variables. Applications include confirmatory factor analysis, multiple group analyses, longitudinal analyses and multitrait-multimethod models.

**SOCIAL WORK**

* **SOWO 916**. **Structural Equation Modeling** (3 credits). In this course, students will learn fundamental concepts and skills to conduct structural equation modeling and will learn how to apply these techniques to social work research.
* **SOWO 917. Longitudinal and Multilevel Analysis** (3 credits). This course introduces statistical frameworks, analytical tools, and social behavioral applications of three types of models: event history analysis, hierarchical linear modeling (HLM), and growth curve analysis.
* **SOWO 918.** **Applied Regression Analysis and Generalized Linear Models**(3 credits) Prerequisite, permission of the instructor. This course introduces statistical frameworks, analytical tools, and social behavioral applications of OLS regression model, weighted least-square regression, logistic regression models, and generalized linear models.

**HEALTH POLICY**

* **HPM 881.** **Linear Regression Models** (3 credits). Permission of instructor required (with exception of HPM PhD students). Prerequisite: BIOS 600 or equivalent background in probability theory/statistics for students lacking the prerequisite. Required preparation, matrix algebra, derivatives, logs/exponentials, and Stata. This course is an introduction to linear regression models. Topics include least squares regression, multicollinearity, heteroscedasticity, autocorrelation, and hypothesis testing. ***Students wishing to enroll in the HPM 881-883 sequence are strongly encouraged to enroll in HPM 880 (Mathematical and Statistical Tutorial) in the preceding fall semester****.*
* **H**[**PM 882**](http://www.sph.unc.edu/images/stories/academic_programs/hpaa/documents/882.pdf)**. Advanced Methodology for Health Policy and Management Research (3** credits**).** Prerequisite: HPM 881, or permission of the instructor. Research methodology as applied to understanding problems in health care delivery. Topics include simultaneous equation models, factor analysis, limited dependent variables, and an introduction to event history analysis.
* **HPM 883. Analysis of Categorical Data** (3 credits) Prerequisite: HPM 881 and HPM 882 or equivalent. This course is an introduction to the analysis of categorical data using maximum likelihood estimation (MLE) and other non-linear techniques and specification tests. Topics covered include models in which the dependent variable is not continuous, including logit, probit, censored data, two-part, and count models.

**BIOSTATISTICS**

* **BIOS 600.** **Principles of Statistical Inference** (3 credits). Major topics include elementary probability theory, probability distributions, estimation, hypothesis testing, chi-square procedures, regression, and correlation.
* **BIOS 545. Principles of Statistical Inference** (3 credits). Continuation of BIOS 600; the analysis of experimental and observational data, including multiple regression, and analysis of variance and covariance.
* **BIOS 665.** **Analysis of Categorical Data** (3 credits). Prerequisites, BIOS 545, 550, and 662; or permission of the instructor for students lacking the prerequisites. Introduction to the analysis of categorized data: rates, ratios, and proportions; relative risk and odds ratio; Cochran-Mantel-Haenszel procedure; survivorship and life table methods; linear models for categorical data. Applications in demography, epidemiology, and medicine.

**ELECTIVE COURSES**

**Strongly Recommended: Additional methods training that can count toward the 9-credit elective requirement.** We highly recommend students in the social behavioral concentration take advanced methods courses beyond the requirements listed above. Students should consult regularly with their advisor to select from many available options. A number of graduate level elective courses that are relevant to the social behavioral concentration are offered at UNC. We list several below but encourage students to review course offerings each semester to find courses that are of greatest interest to them.

**Health Behavior**

* **HBEH 753. Qualitative Research Methods** (3 credits)
* **HBEH 754. Advanced Qualitative Research Methods in Health Behavior and Health Research** (3 credits)
* **HBEH 756. Social and Peer Support in Health: An Ecological and Global Perspective** (3 credits)
* **HBEH 795. E-Health** (3 credits)

**SOCIAL WORK**

* **SOWO 921. Qualitative Research Methods.** (3 credits)
* **SOWO 922. Advanced Topics in Causal Inference: Propensity Score and Related Models.**

(3 credits)

**SOWO 923. Systemic Reviews and Introduction to Meta-Analysis.** (3 credits)

**NURSING**

* **NURS 962. Conducting Systematic Reviews and Writing Specific Aims.** (4 credits)
* **NURS 976. Issues in Sampling and Design.** (3 credits)
* **NURS 977. Qualitative Approaches to Knowledge Development.** (3 credits)
* **NURS 979. Qualitative Analysis.** (3 credits)

**SOCIOLOGY**

* **SOCI 761. Questionnaire Design.** (3 credits)
* **SOCI 762. Case Studies in Surveys.** (3 credits)
* **SOCI 863. Sociology of Health, Illness, and Healing.** (3 credits)

**EPIDEMIOLOGY**

* **EPID 825. SOCIAL DETERMINANTS OF HEALTH: THEORY, METHOD, AND INTERVENTION**

(3 credits)

**HEALTH POLICY**

* **HPM 758. Underserved Populations and Health Reform** (3 credits)
* **HPM 830. Translational Health Disparities: Research, Practice & Policy** (3 credits)