

Public Policy Analysis Minor

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There is a great need for policy analysis of social, scientific, and technological issues. The value of such analysis is greater than ever at a time of significant budget cuts in social programs as well as those supporting basic research. Are these budget cuts justifiable? If not, how large are economic, scientific, and political damages to the nation, to California, and to San Diego? How can one best determine which social and scientific research programs have the highest priority?

An important and novel element in the minor is the emphasis on science and technology policy as the unifying theme. In this respect, the policy minor is unique in the United States, in that it is designed to appeal to not only students interested in the social sciences, but also those interested in the natural sciences. Thus, students who are interested in policy problems of the atmosphere, ecology, energy, the environment, or the ocean would find a useful and appealing sequence of courses in the minor.

Of course, the minor is also appealing and valuable for students in the social sciences who want an analytically-based concentration in areas of public policy. In addition to those above, examples include communications policy and population policy. Political science students with an interest in economic policy and economics students with an interest in political economy would also find a home here.

The public policy minor provides students with many of the necessary analytical skills and the institutional background for the understanding of how public policy is made and how it should be made. Research and teaching in the ways of government and the methods of policy evaluation enriches our understanding of national, state, and local policy issue. It also leads to more effective government, as students and professors go on to provide governments with greater expertise.

The Minor Program

The following are minor requirements for students admitted to UCSD January 1, 1998. Students admitted to UCSD prior to the above date must see the program adviser to confirm minor requirements.

There are numerous policy courses taught in a variety of departments, and these are now drawn together. Accordingly, faculty from biology, chemistry, communication, economics, engineering, IR/PS, political science, SIO, sociology, and others teach in the program.

The program consists of statistics prerequisites, core courses, and policy-oriented elective courses. These courses are offered in the departments listed above. The primary goal of the prerequisite courses is to develop a solid analytical base for the minor. These courses consist of one or two quarters of statistics. The upper-division core sequence is a two-quarter course in policy analysis, with one course in economics and the other in political science. The four additional electives required for a minor are upper-division policy-related courses in the social and natural sciences. Except by petition to the coordinator, two of the courses must be from the policy tools section below, and two must be from the applied policy section listed below. Students may also petition the coordinator to allow courses not listed below to count toward the minor requirements. These courses must be policy-related.

Statistics Courses

Statistics courses are necessary to provide a solid analytical foundation to policy analysis by allowing students to confront the data in a careful and systematic fashion.

A statistics course covering multiple regression techniques is required. This requirement should typically be met by Political Science 168 or Economics 120A–120B or Math. 180A–181A, BIEB 100 and 179, or by petition to the coordinator.

Economics 120A–120B: Econometrics

(ECON 120A-B conjoined with ECON 120AH-BH.) Probability and statistics used in economics. ECON 120A covers basic data analysis using spreadsheets, probability and sampling theory, and introduction to UNIX and MS-DOS operat-

ing systems. 120B covers statistical inference and basic regression including special topics. *Prerequisites: ECON 1A-B or 2A-B and MATH 10A-B-C or 20A-B-C.* The ECON 120A-B-C sequence must be taken in that order (A before B before C). Credit not allowed for both ECON 120A and MATH 183. Also, see the “Note on overlaps” at the end of the undergraduate course descriptions.



Mathematics Statistics:

MATH 180A: Introduction to Probability.

Probability spaces, random variables, independence, conditional probability, distribution, expectation, joint distributions, central-limit theorem. Three lectures. *Prerequisite: MATH 20D/21D.* (Warning: There are duplicate credit restrictions on this course. See section on Duplication of Credit.)

MATH 181A: Introduction to Mathematical

Statistics. Random samples, linear regression, least squares, testing hypotheses, and estimation. Neyman-Pearson lemma, likelihood ratios. Three lectures, one recitation. *Prerequisites: MATH 180A and 20F.* (Warning: There are duplicate credit restrictions on this course. See section on Duplication of Credit.)



BIEB 100 and BIEB 179: Biometry and Conservation Biology Laboratory

BIEB 100. Biometry. This course provides an introduction to the use of statistics in biological problems. Topics: parametric statistics (t-tests, correlation, regression, ANOVA), non-parametric statistics, resampling methods, experimental design. Mandatory homework to apply theory using statistical Macintosh-based programs. Instructor conducts mandatory two-hour discussion session in computer lab. Three hours of lecture and two hours of laboratory section. *Prerequisite: BILD 3.*

BIEB 179. Conservation Biology Laboratory.

Students will utilize, modify, and create computer software to solve conservation biology management problems. Topics included are pedigree analysis, stochastic population dynamics, community structure, and island bio-

geography. Two hours of lecture and eight hours of lab each week. In addition to the formal lab hours, there will be at least seven hours in which students will be required to work in the class laboratory to complete experiments and prepare for presentations. *Prerequisite: BIEB 178.* (May be taken concurrently).

CORE COURSES

The core of policy analysis consists of a framework for identifying, analyzing, and solving social problems through government policy. A description of current institutions and current policy problems is essential. Next, empirical and theoretical analysis is necessary to find the causes of these problems' failures. Finally, students of public policy need to know the economic and political tools that can help remedy societal problems and can promote social goals.

ECON 130. Public Policy: Role of economics in public policy. Topics such as funding health care, drug policy, incentives for high technology industries, mass transit versus highway construction, and agriculture subsidies. Term paper usually required. *Prerequisites: ECON 1A-B or 2A-B.*

POLI 160AA. Introduction to Policy Analysis. This course will explore the process by which the preferences of individuals are converted into public policy. Also included will be an examination of the complexity of policy problems, methods for designing better policies, and a review of tools used by analysts and policy makers. *Prerequisite: POLI 10 or 11.*

ELECTIVES

A public policy minor requires four of the following electives and must include two courses in the policy tools sequence and two courses in the applied policy sequence. No more than two courses in any one department can be counted toward the electives requirement. The intent is to encourage students to acquire additional tools, along with the applications. At the same time, a student with a major in, say, economics is required to gain some breadth in other subjects. Students are reminded that a course counted toward the major cannot also count toward the minor.

POLICY TOOLS COURSES:

ECON 150. Economics of the Public Sector:
Taxation

ECON 151. Economics of the Public Sector:
Expenditures

ECON 155. Economics of Voting and Public Choice

ECON 171. Decisions under Uncertainty

MAE 110A. Thermodynamics

POLI 102B. Politics of American Economic Policy

POLI 160AB. Introduction to Policy Analysis

SIO 276. Quantitative Theory of Populations and
Communities

SOC/A 107. Demographic Methods

SOC/A 108A. Survey Research Design

SOC/A 108B. Quantitative Analysis of Survey Data

APPLIED POLICY COURSES:

BIEB 121. Ecology Lab

BIEB 165. Sociobiology Lab

BIEB 176. Conservation and the Human
Predicament

BIEB 178. Principles of Conservation Ecology

CHEM 149A. Environmental Chemistry

CHEM 149B. Environmental Chemistry

CHEM 173. Atmospheric Chemistry

CO/SF 121. National Policies in Global
Communications

CO/SF 122. Multinational Policies in Global
Communication

CO/SF 128. Information Technology: Culture,
Society, Politics

ERTH 142. Atmospheric Chemistry and the
Biochemical Cycles of Atmospheric Trace Gases

ECON 125. Economics of Population Growth

ECON 131. Economics of the Environment

ECON 132. Energy Economics

ECON 145. Economics of Ocean Resources

IRGN 258. International Environmental Policy

MAE 118A. Energy: Non-Nuclear Energy
Technologies

MAE 118B. Energy: Nuclear Energy Technologies

POLI 167A-B. Seminar: Public Policy Analysis

PSYC 162. Psychology and The Law

PSYC 186. Psychology and Social Policy

SIO 202. Introduction to Climate and Climate
Change

SIO 236. Satellite Remote Sensing

SIO 275A. Benthic Ecology
SIO 275B. Natural History of Coastal Habitats
SOC/C 140. Sociology of Law
SOC/C 141. Crime and Society
SOC/C 144. Forms of Social Control
SOC/C 148. Political Sociology
SOC/C 152. Social Inequality and Public Policy
(Same as USP 133.)
STPA 181. Elements of International Medicine

CONCENTRATIONS WITHIN THE MINOR

Below are some examples of elective course sequences that would allow concentration on particular subfields and would also fulfill the minor's requirements.

Example 1: General Natural Science Majors:
MAE 110A, ECON 171, BIEB 178, and SIO 275A
(or 275B)

Example 2: General Social Science Majors:
ECON151, POLI 160AB, ECON 111, and POLI 167

Examples 3: Population Policy:
SIO 276, SOC/A 107, BIEB 176, and ECON 125

Example 4: Energy Policy:
MAE 110A, POLI 102B, ECON 132, SIO 202

Example 5: Ocean Policy:
POLI 160AB, SIO 276, ECON 145, SIO 275A
(or 275B)

Example 6: Environmental Policy:
ECON 151, SIO 276, BIEB 178, ECON 131

Example 7: Communication Policy:
POLI 160AB, SOC/A 108A (or 108B); CO/SF 121,
122, or 128 (two out of the three)