

CURRICULUM PROPOSAL FORM  
University-Wide Undergraduate Curriculum Committee

UWUCC USE ONLY

|        |                      |
|--------|----------------------|
| Number | <u>42</u> / <u>1</u> |
| Action | _____                |
| Date   | _____                |

I. TITLE/AUTHOR OF CHANGE

COURSE/PROGRAM TITLE Geography of Fresh Water Resources GE340

DEPARTMENT Geography and Regional Planning

CONTACT PERSON Dr. Robert Begg

II. APPROVALS

Donald W. Buchwalter  
Department Curriculum Committee

R. Begg  
Department Chairperson

Rachel Fardyse  
College Curriculum Committee

Rachel Fardyse  
College Dean \*

\_\_\_\_\_  
Director of Liberal Studies  
(where applicable)

\_\_\_\_\_  
Provost  
(where applicable)

\* COLLEGE DEAN MUST CONSULT WITH PROVOST BEFORE APPROVING CURRICULUM CHANGES. APPROVAL BY COLLEGE DEAN INDICATES THAT THE PROPOSED CHANGE IS CONSISTENT WITH LONG RANGE PLANNING DOCUMENTS, THAT ALL REQUESTS FOR RESOURCES, MADE AS PART OF THE PROPOSAL, CAN BE MET, AND THAT THE PROPOSAL HAS THE SUPPORT OF THE UNIVERSITY ADMINISTRATION.

III. TIMETABLE

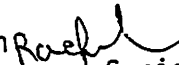
Date Submitted to UWUCC \_\_\_\_\_ Semester/Year to be Implemented \_\_\_\_\_ Date to be published in Catalog \_\_\_\_\_

IV. DESCRIPTION OF CURRICULUM CHANGE

(Attach remaining parts of proposal to this form).

SUBJECT: GE 340 Course Proposal

TO: Chairpersons, College of Humanities and  
Social Sciences

FROM: Rachel Fordyce, Dean   
College of Humanities and Social Sciences

DATE 22 September 1989

The attached course proposal will be reviewed at the chairs' meeting on 11 October 1989. This is a regular course proposal.

KN

Enc.

Date: September 18, 1989

Subject: GE 340 Course Proposal

To: Chairs, Humanities and Social Science

From: Robert Begg, Chair of Geography and Regional Planning

Attached is a course proposal "Geography of Fresh Water Resources."  
It is not a lib-ed submission. It is appropriate for both geography  
and planning majors.

GE 340 GEOGRAPHY OF FRESH WATER RESOURCES

COURSE ANALYSIS QUESTIONNAIRE

Section A: Details of the Course

A1 Sound water management practices are necessary for our survival. This course examines fresh water as a resource from a physical as well as a cultural perspective. Both perspectives are basic approaches in geographic instruction. The course is designed for those who might someday be in a position to make judgments about water and water use for themselves and the public. While geography and regional planning majors would benefit from the approach outlined in the syllabus, non-majors in Consumer Services, Environmental Health, Geoscience, Government and Public Service, Marketing, Safety Sciences and Sociology would benefit as well.

This course is not proposed for inclusion in the Liberal Studies course list.

A2 No existing courses need be changed.

A3 Yes, this course is a traditional type of offering by the department.

A4 No, the course has never been offered at IUP.

A5 No, this is not a dual level course.

A6 No, this course is not for variable credit.

A7 Approximately one-fifth of the departments of geography in the United States offer a water resources course. None is offered in SSHE departments of geography. Water resources courses are strong in the western states where they have had to deal with the problem of scarcity and conflict longer than we have in the east.

A8 The content and skills in this course are not recommended nor required by any licensing agency.

Section B: Interdisciplinary Implications

B1 This course will be taught by one instructor.

B2 No additional nor corollary courses are needed for this course.

B3 No other course in the university has content which treats

fresh water as a resource. There is not a course in which the values different societies hold about fresh water are explored.

- B4 Yes, seats will be made available for students in the School of Continuing Education.

Section C: Implementation

- C1 Adequate resources already exist within the university to support this course.
- C2 No grants are being used to support this course.
- C3 This course would be offered on a two year cycle.
- C4 Probably enrollments would be around 20 to 25 students.
- C5 The seating will accommodate approximately 40 students. The limitation is classroom size.
- C6 No professional society recommends enrollment limits for this course.
- C7 No, this course will not be a curriculum requirement.

Section D: Miscellaneous

There is no additional information to include in this Course Analysis Questionnaire.



C. World's Water Inventory. (2 lectures)

1. World Distribution.

Atmosphere  
Oceans  
Surface Water on the Lands  
Ice Caps  
Groundwater

2. Estimates of total supplies.

D. Elements of the Water Supply. (4 lectures)

1. Hydrologic Cycle and Storage Points.

Atmospheric Moisture  
Surface Water Supply  
Groundwater Supply

2. Differences in water supply.

Humid Lands  
Arid Lands

3. Rates of precipitation.

4. Rates of evaporation.

E. Humid/Arid Values and Conflicts. (6 lectures)

1. Value Differences and Land Use.

2. Water Law and Water Rights: Surface/Ground Water.

English Common Law/Riparian Rights  
Doctrine of Prior Appropriation  
Doctrine of Correlative Rights  
Reasonable Use

3. Water Use.

Withdrawal (non-abstractive)  
Consumptive (abstractive)

F. Water Problems. (5 lectures)

1. Unequal World Distribution of Fresh Water.

2. Variability of Supply.

Droughts  
Floods

3. Irrigation and Water Transfer.

U. S. Bureau of Reclamation  
Reservoir Sedimentation  
Saline Deposits  
Regional/Interregional Conflicts

4. Contamination and Pollution.

Loss of Quality  
Heavy Metals and Industrial Wastes  
Thermal Pollution  
Acid Rain  
Salt Water Intrusion  
Mineral Salts  
Well Drilling Contamination  
Waste Water Treatment  
Re-use of Water

G. Floods and Flood Control. (3 lectures)

1. Shifting Boundaries and River Regimes.

2. Channelization.

3. Reservoir Sedimentation.

4. Flood Insurance/Floodplain Zoning.

H. World Water Problems. (5 lectures)

1. River Basin Management in the United States.

Delaware River  
Columbia River  
Colorado River

2. Water Use Problems of Asia.

India  
Bangladesh

3. Water Development Problems of Brazil.

I. Political Implications of an Inadequate Water Supply.  
(1 lecture)



#### IV. EVALUATION METHODS

The final grade for the course will be determined as follows:

50% Exams. There will be two exams featuring essay, short answer and map questions.

25% written reports from journals and newspapers during the semester.

25% term paper and report.

#### V. REQUIRED TEXTBOOKS, SUPPLEMENTAL BOOKS AND READINGS

Textbooks:

Anderson, Terry L. 1983. Water Rights, Scarce Resource Allocation, Bureaucracy, and the Environment. San Francisco: Pacific Institute for Policy Research.

Matthews, Olen P. 1984. Water Resources, Geography and Law. Washington, DC: Association of American Geographers, Resource Publications in Geography.

Reisner, Marc. 1986. Cadillac Desert: The American West and Its Disappearing Water. New York: Penguin Books.

Supplementary Readings:

Ballard, S. C. 1982. Water Policy and Western Energy. Boulder: Westview Press.

Kinley, D. 1987. "A Global Search Yields Affordable Water: Bangladesh." U. N. Chronicle. 24:71-2.

Saleba, B. C. and D. B. Bush. 1988. "Water Markets in Theory and Practice: Market Transfer, Water Values, and Public Policy." Land Economics. 64:306-10

Southgate, D. and R. Macke. 1989. "The Downstream Benefits of Soil Conservation in Third World Hydroelectric Watersheds." Land Economics 65:38-48.

Stegner, W. 1953. Beyond the Hundredth Meridian. Boston: Houghton-Mifflin.

Wallach, B. 1988. "Irrigation in Sudan since Independence." Geographical Review. 78:417-34

Webb, W. P. 1931. The Great Plains. New York: Ginn.

Wittfogel, K. A. 1956. "The Hydraulic Civilizations." In Man's Role in Changing the Face of the Earth, ed. W. L. Thomas, Jr., 152-164. Chicago: University of Chicago Press.

Worster, D. 1985. Rivers of Empire: Water, Aridity and The Growth of The American West. New York: Pantheon Books.

#### VI. SPECIAL RESOURCE REQUIREMENTS

None

#### VII. BIBLIOGRAPHY

Ashworth, William. 1982. Nor Any Drop to Drink. New York: Summit Books.

Geraghty, J., D. Miller, F. Van Der Leeden and F. Troise. 1973. Water Atlas of the United States. Port Washington, NY: Water Information Center.

Getches, David H. 1984. Water Law. St. Paul: West Publishing Co.

Graf, William L. 1985. The Colorado River: Instability and Basin Management. Washington, DC: Association of American Geographers, Resource Publications in Geography.

National Academy of Sciences. 1968. Water and Choice in the Colorado Basin: An Example of Alternatives in Water Management. NAS-NRC Pub. 1689, Washington, DC.

National Water Council. 1968. The Nation's Water Resources. Washington, DC: Water Resources Council.

Quinn, Frank. 1968. "Water Transfers- Must the American West Be Won Again?" Geographical Review 58:108-132.

Resources for the Future. Resources. No.83 Spring 1986.

Sawyer, Stephen W. 1986. Renewable Energy: Progress, Prospects. Washington, DC: Association of American Geographers, Resource Publications in Geography.

Smythe, William E. 1899 [1969] The Conquest of Arid America. Seattle: University of Washington Press.