UNIVERSITY OF MINNESOTA
Graduate School

Minutes, Graduate School Executive Committee
Meeting of Tuesday, May 23, 1989
1:15 p.m., Room 303 Johnston Hall

Present: Faculty representatives--Professors Ellis S. Benson, Darrell A. Frohrib, John Fraser Hart, David E. Smith, Michael G. Wade; administrative representatives--Dean Kenneth Zimmerman (chair pro tem.); Duluth representative--Professor Stephen C. Hedman; General Research Advisory Committee representative--Professor Thomas J. Bouchard; Graduate School Fellowship Committee representative--Professor Mark Snyder; student representatives-Trudy Dunham, Denise Remus, Rebecca Seal; guests: Professors Richard A. King, John R. Tester and Dorothy E. Vawter; Dianne M. Bartels and Bonnie LeRoy; staff--Dean John T. Hatten, Myrna Smith; secretary--Vicki Field

I. FOR ACTION

A. Approval of the Minutes of the May 2, 1989 Meeting

The minutes were approved as submitted.

B. Proposal for an M.S./Ph.D. Degree Program in Conservation Biology

Dean Zimmerman introduced Professor Tester and reported that both the Social Sciences and the Plant and Animal Sciences Policy and Review Councils had approved the proposal. Professor Smith said the Plant and Animal Sciences group had approved it unanimously, but with the understanding that it would be revised to require prerequisite preparation or coursework in biology, and to include elective coursework in animal and plant reproduction. Dean Zimmerman added that these changes had now been incorporated in the document. In response to a question from Professor Benson, Professor Tester stated that the program would be an entirely new program, but with the potential to attract some students who at present matriculate in Wildlife Conservation, Ecology, and related fields. He noted that over 40 percent of the students who inquire about graduate opportunities in Wildlife, for example, specify an interest in conservation biology.

(COPY OF PROPOSAL APPENDED WITH THESE MINUTES.)

A motion to approve the proposal passed on a unanimous vote.

C. Proposal for a Free-Standing Minor in Bioethics for the Master's and Doctoral Degrees

Dean Zimmerman stated that the Health Sciences and the Social Sciences Councils had reviewed the proposal. Professors Benson and Hart reported that their respective Councils had approved the proposal without dissent.

On a unanimous vote, Executive Committee members also voted to approve the establishment of a free-standing graduate minor in Bioethics. (There was no discussion.)

(COPY OF PROPOSAL APPENDED WITH THESE MINUTES.)

D. Proposal to Add an Emphasis in Genetic Counseling for the M.S. Degree (Plan B) in Genetics

Dean Zimmerman introduced Professor King and Ms. LeRoy. He reported that three Councils--Plant and Animal Sciences, Health Sciences, and Social

Sciences--had approved the proposal. No further review beyond the Executive Committee is required. Professor Hedman asked why the degree with this emphasis would be limited to the Plan B option. Professor King explained that the program will be highly structured and will involve no research, making the Plan B the appropriate option. (COPY OF PROPOSAL APPENDED WITH THESE MINUTES.)

A motion to approve the addition of the emphasis passed without dissent.

E. Council of Graduate Students' (COGS') Clarification of Status

Dean Zimmerman reported that all six Policy and Review Councils had approved the resolution offered by the Council of Graduate Students (the Plant and Animal Sciences group, with minor modification). Ms. Seal thanked the Councils for their support. She stated that COGS is currently assembling material for an upcoming meeting of the Senate Consultative Committee that will explain how the resolution would affect student representation on the University Senate and necessitate corresponding changes in the Senate constitution. The resolution was brought before the Policy and Review Councils and Executive Committee to inform faculty of the issues and to engender faculty support before the matter is presented to the Senate in the fall, Ms. Seal said. Professor Benson inquired about COGS' relationship to the Minnesota Student Association (MSA) if the resolution is adopted. Ms. Seal explained that MSA considers COGS to be a collegiate board within the undergraduate student organization; the Graduate School constitution, however, recognizes COGS as the official body representing graduate students at the University. If adopted, the resolution will prevent MSA from removing from the Senate COGS members who do not regularly attend MSA meetings, which deal primarily with undergraduate student concerns. The resolution's principal objective is to formalize graduate student input to the University Senate and its committees, Ms. Seal stated. Whether Graduate School students in the future will continue to pay the MSA fee in addition to the COGS fee remains unclear, she added. Professor Benson favored the proposed resolution but said he would not wish to have COGS also represent students in the University's professional post-baccalaureate degree programs. These students' needs and perspectives differ from those of Graduate School students, he pointed out.

On a unanimous vote, members approved the resolution as presented: "Resolved, that the [Executive Committee] acknowledges the Council of Graduate Students as the independent organization representing graduate students and as such recognizes [COGS'] need to have balanced representation in the University Senate." (COGS'DOCUMENT APPENDED WITH THESE MINUTES.)

II. FOR INFORMATION

A. Creation of Graduate School Committees on Student Conduct and on Scholastic Standing

Dean Zimmerman recalled that in February, Executive Committee members' reaction was mixed to the notion of Graduate School committees on student conduct and scholastic standing. The Graduate School staff will reconsider the idea over the summer and may present a proposal to the Committee in the fall.

B. Update on the Proposal to Eliminate Half-Price Tuition

Dean Zimmerman stated that the original plan was to eliminate half-price tuition effective with the fall quarter, 1990. The elimination of half-price tuition depends on availability of financial assistance to ameliorate hardship cases, however, and these funds have not yet been identified. As the 1989 fall quarter nears, more will be known about the budget; a proposal will be presented to the Committee in the fall, contingent on the availability of additional funding, Dean Zimmerman said. In response to a question from Professor Hart, he explained that prospective students could be forewarned of the change via recruitment materials assembled in the fall, after a decision on half-price tuition is made. Dean Hatten pointed to implications for graduate programs at Duluth that prepare recruiting brochures during the summer. Dean Zimmerman suggested that in view of Duluth's earlier schedule for brochure production, implementation of the change could be deferred to fall, 1991. Ms. Seal recalled that no students would be "grandfathered" under a change to abolish half-price tuition. Dean Zimmerman explained that in lieu of a grandfather clause, financial aid would be used to assist students in high-credit master's degree programs, especially.

C. Possible Restructuring of the Policy and Review Councils to Better Represent the Interests of Graduate Degree Programs in the Biological Sciences

Dean Zimmerman reported that Dean Holt had called a special meeting later this week of the Plant and Animal Sciences Council and representatives of basic science programs on the Health Sciences Council. The purpose of the meeting is to explore the possibility of restructuring the two Councils to better align programs with common interests. Dean Zimmerman elaborated on this issue and recalled that several years ago, a Graduate School committee (co-chaired by Professor Benson) had also examined ways in which graduate programs in the biological sciences might interact more effectively. Dean Zimmerman further noted that alignment of programs in the Graduate School governance structure is not necessarily along departmental and college lines, but may be organized on a more practical, functional basis to facilitate discussion among like programs on topics of mutual concern. If support for restructuring is demonstrated at the special meeting, a proposal will be put to the Policy and Review Councils and Executive Committee in the fall, he indicated. Professor Benson commented on the heterogeneity of programs currently represented on the Health Sciences Council, adding that the Council's basic biology programs are much more like programs on the Plant and Animal Sciences committee. In his opinion, the Health Sciences Council would still be viable without these programs, Professor Benson said. Professor Hart suspected that the lack of congruency between departments/colleges and graduate programs in the Graduate School governance structure is not commonly understood. Following a brief discussion, Executive Committee members voted unanimously to approve a motion, offered by Professor Hart, that Dean Holt should send a memorandum in the fall reminding programs and faculty of the possible disjunction between departments/colleges and graduate programs in the Graduate School governance structure, and identifing issues that are likely to arise for the Graduate School in the coming academic year.

D. Report from the Graduate School Fellowship Committee

Professor Snyder and Ms. Smith called attention to material distributed at the meeting that summarized the year's fellowship activities and included preliminary results of a survey of first-year Graduate School fellowship recipients who declined these awards for 1989-90. Ms. Smith commented briefly on these materials, noting in particular the Graduate School's strong competition for top students. A question from Professor Benson about how Minnesota programs might be more effective in getting fellowship recipients to matriculate here prompted a lengthy discussion of recruiting techniques and strategies. Professor Snyder stated that the results of national studies on recruiting practices show that students are most responsive to personal contact and attention. He added that programs will receive narrative comments made by fellowship recipients who elected to enroll elsewhere so that programs will know why particular students made this decision. Mentioned as helpful in recruiting good students to University graduate programs were having prospective students meet with graduate students already in a program, and using current fellowship recipients to recruit on the campus of their undergraduate degree. In response to a question from Dean Zimmerman, Professor Snyder said the Fellowship Committee was pleased with the results of this year's competition. He added that the number of multiple-year fellowships offered seemed about right, and he underscored the importance of these awards, which are also extended by many other schools. Ms. Smith reported that this past fall, Graduate School Fellowship recipients were also encouraged to apply for National Science Foundation Fellowships.

E. Report from the General Research Advisory Committee

Professor Bouchard distributed a one-page summary of Graduate School grant-in-aid research funding for fiscal year 1988-89, sorted by college and campus. He commented briefly on the figures. On the Twin Cities campus, the College of Liberal Arts receives the most awards, and the largest group of applicants is also in this area, Professor Bouchard said. He stated that he would like to see more proposals from the Duluth campus and he welcomed suggestions for increasing the number of applications from UMD faculty. The committee meets once each year in Duluth, Professor Bouchard added. The quality of proposals is very high; not all applicants received the full amount requested, however, because there are simply not enough funds. For the same reason, not all eligible proposals were funded. The figures do not include awards made by the Health Sciences Research Advisory Committee, Professor Bouchard clarified. He briefly described the review process, noting that the first priority is to fund research of new young faculty. In response to a query from Professor Snyder, Professor Bouchard reported that for the current (1988-89) fiscal year, the largest funding amounts went to new faculty (42 percent of the total funds awarded) and to faculty in areas (e.g., the humanities) where external research support is scarce (18.9 percent). Forty-eight percent of the funds for 1988-89 went to assistant professors, 37.9 percent to full professors, and 18.5 percent to associate professors.

F. Report from the Council of Graduate Students

Ms. Seal introduced COGS' president-elect, Ms. Trudy Dunham. Ms. Seal recapped COGS' activities for this academic year, which included work toward passage of federal legislation restoring the tax-exempt status of tuition benefits for graduate assistants; collaboration with graduate students on the University's Duluth campus, who have now drafted their own constitution; and efforts to introduce a program for TA development. University library acquisitions are of continuing concern to COGS, Ms. Seal added. She extended appreciation to Dean Holt for his efforts with respect to changes in the tax laws. She also thanked Dean Hatten for his help in organizing graduate students at Duluth. Dean Hatten mentioned incidentally that he would like to see the relationship between the two graduate student organizations formalized in the coming year. Concerning TA development, Ms. Seal reported that a bill has been introduced in the State legislatature that seeks funds for TA training. COGS has provided President Hasselmo with the names of six individuals who might be selected to assist in developing the program, which the President is hopeful will be established this fall. Yet unclear is which office of the University will administer and coordinate the program, Ms. Seal said.

G. Report of Board of Regents Actions Regarding Degree Program Additions, Deletions, and Name Changes

Dean Zimmerman reported that the Board of Regents on March 10 gave final approval to the change in name of the Biometry graduate program to Biostatistics.

H. Date of Next Meeting

Members confirmed Thursday, June 8, as the date of the Committee's next meeting. Dean Zimmerman indicated that the only agenda item would be the report of the Ad Hoc Committee on Off-Campus Graduate Programs and the recommendations of the Physical Sciences Policy and Review Council with respect to this report. He commented briefly on the charge to the Ad Hoc Committee and the impetus for its formation.

III. OLD BUSINESS

No old business was reported.

IV. NEW BUSINESS

No new business was reported.

The meeting was adjourned at 2:36 p.m.

Respectfully submitted,

Vicki Field, Assistant to the Dean

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Ecology and Behavioral Biology
109 Zoology
318 Church Street S.E.
Minneapolis, Minnesota 55455
(612) 625-4466

6 April 1989

Dean Robert T. Holt
Graduate School
Johnston Hall
Minneapolis Campus

Dear Dean Holt:

Please find enclosed a proposal to establish a MS / PhD program in Conservation Biology, which we are submitting for consideration by the appropriate committees of the Graduate School and the administration. We are requesting implementation of the program in Winter Quarter of 1990.

A total of 32 members of the graduate faculties of nine departments in five colleges held a number of meetings during 1988 and appointed sub-committees to prepare parts of the proposal. This group unanimously and enthusiastically supports the establishment of a MS / PhD program in Conservation Biology, . We hope that our enthusiasm will be shared by the review committees and administrative units.

Thank you for your consideration.

Sincerely yours,

John R. Tester

John R. Tester
Professor
Representing the faculty participants

cc: Faculty participants

PROGRAM APPROVAL CERTIFICATION

6 April 1989
(Date)

Proposal for (name of program): Conservation Biology

Submitted by (department(s) name): Graduate School

of the (college or campus name): University of Minnesota

**The Proposal has been reviewed and approved by:**

**APPROVAL CERTIFICATION**

John R. Tester 4-6-89
Dr. John R. Tester (Date)
Representing the
faculty participants

P.T. Magee 5/24/89
Dean P.T. Magee (Date)
College of Biological Sciences

G. Edward Schuh 5-23-89
Dean G. Edward Schuh (Date)
Hubert H. Humphrey Institute
of Public Affairs

Richard A. Skok 5-24-89
Dean Richard A. Skok (Date)
College of Natural Resources

(Vice President, Academic Affairs) (Date)

**ADDITIONAL APPROVALS** (as appropriate)

(Dean, Graduate School) (Date)

(Chancellor or Vice Chancellor for Academic Affairs or Administration) (Date)

(Vice President, Health Sciences) (Date)

(Vice President, IANRHE) (Date)

Approved by Board of Regents: (Date)

First Reading by PAC (MHECB): (Date)

Second Reading by PAC (MHECB): (Date)

Recommendation by MHECB: (Date)

Confirmation by Board of Regents: (Date)

# PROGRAM APPROVAL CERTIFICATION

6 April 1989
(Date)

Proposal for (name of program): Conservation Biology

Submitted by (department(s) name): Graduate School

of the (college or campus name): University of Minnesota

**The Proposal has been reviewed and approved by:**

APPROVAL CERTIFICATION

John R. Tester

Dr. John R. Tester 4-6-89
Representing the faculty participants (Date)

(Dean) (Date)

(Vice President, Academic Affairs) (Date)

ADDITIONAL APPROVALS (as appropriate)

(Dean, Graduate School) (Date)

(Chancellor or Vice Chancellor for Academic Affairs or Administration) (Date)

(Vice President, Health Sciences) (Date)

(Vice President, IANRHE) (Date)

Approved by Board of Regents ____ (Date)

First Reading by PAC (MHECB): ____ (Date)

Second reading by PAC (MHECB): ____ (Date)

Recommendation by MHECB: ____ (Date)

Confirmation by Board of Regents: ____ (Date)

UNIFORM PROGRAM INVENTORY
AND PROPOSAL FORM (UPIPF)

SECTION I

(To be completed by the institution(s); see attached instructions)

Name of Institution(s): 1) University of Minnesota

2) ______

If more than one institution, indicate if it is:

____ joint program (two or more institutions grant the degree)

____ cooperative program (two or more institutions share the curriculum, but only one grants the degree)

1. Program Title (including degree, if applicable):

Conservation Biology, M.S. and Ph.D.

Program Classification (check one): major X minor ___
concentration ___ other ___ ______ (specify)

[If applicant is a private institution, does it have approval to grant the appropriate degree under the Private Institutions Registration program:

Yes ____ No ____ In process ____]

2. Program Type: X Preservice ____ In-service X Occupational ____ General

3. Proposed Implementation Date: 9 / 90 (mo. / yr.)

4. Program Length:

| | Credit hours | Clock hours |
|---|---|---|
| M.S. | 44 | 176 |
| Ph.D. | 68 | 272 |

5. Describe the Program (in 50 words or less):

The overall objective of the program is to educate students who will understand the causes of conservation problems and will be well prepared to develop solutions or approaches to these problems that are scientifically and environmentally sound, and likely to be acted upon or implemented by existing social and political structures.

6. Expected student interest in the program during the first year of operation, and when the program reaches full operating level.

| | First Year (1990) Number Expected | Hours Generated | Full Operation (1992) Number Expected | Hours Generated |
|---|---|---|---|---|
| Program Enrollees | 10 | | 30 | 3600 |
| Program Graduates | 0 | 1200 | 10 | |

7. Projected Costs of the Program:

| | First Year (1990) New FTE | Cost | Reassigned FTE | Cost | Full Operation (1992) New FTE | Cost | Reassigned FTE | Cost |
|---|---|---|---|---|---|---|---|---|
| a. Faculty | | $ | | $ | | $ | | $ |
| b. Civil Service | | $ | .25 | $ 5300 | | $ | .25 | $ 5732 |
| c. Equip, Supplies | | $ 9000 | | $ 8000 | | $ 9700 | | $ |
| d. Space Rental | | $ | | $ | | $ | | $ |
| e. Other Seminar Program | | $ 7500 | | $ 4500 | | $ 8112 | | $ 4867 |
| f. Total | | $ 16,500 | | $ 17,800 | | $ 17,812 | | $ 10,599 |

(Full operation figures include 4% annual inflationary increases.)

8. Expected Sources of Funds for Program:

| | First Year (19___) Dollar Amount | % of Annual Expend. | Full Operation (19___) Dollar Amount | % of Annual Expend. |
|---|---|---|---|---|
| a. State | $ 21,544 | 62.8 | $ 18,950 | 66.7 |
| b. Tuition | $ 10,756 | 31.4 | $ 9,461 | 33.3 |
| c. Federal | $ | | $ | |
| d. Private | $ | | $ | |
| e. Other Contribution (specify) | $ 2,000 | 5.8 | $ | |
| f. Total | $ 34,300 | 100.0 | $ 28,411 | 100.0 |

9. Governing Board(s) Preliminary Approval Date(s):

Institution 1 ______________________________

Institution 2 ______________________________

10. System(s) Verification:

| ______________________ | ______________________ | __________ |
|---|---|---|
| Authorized Institution or System Signature | Title | Date |
| ______________________ | ______________________ | __________ |
| Authorized Institution or System Signature | Title | Date |

UNIFORM PROGRAM INVENTORY
AND PROPOSAL FORM (UPIPF)

SECTION II

To complete Section II, see attached instructions.

# SECTION II

# PROPOSED PROGRAM'S COMPLIANCE WITH HECB GUIDELINES

## 1. Mission of the Proposing Institution

The University of Minnesota is the only institution in Minnesota awarding the PhD degree. The Conservation Biology program will train students for positions in Minnesota and throughout the world.

## 2. Evidence of Institutional Readiness

All resources to implement and operate the program are currently available at the University of Minnesota.

Accreditation status - not applicable.

## 3. Cost of the Program

Recurring expenses are itemized below. These figures are based on 30-40 graduate students at full strength. The program will probably admit 10 new students per year and will compete for fellowships from the graduate school. Funding will be through reallocation of existing resources. One-third of the program will be funded by public tax dollars. The program is not primarily dependent on public resources.

| | Year 1 | Full operation* |
|---|---|---|
| Invited seminar speakers | $12,000 | $12,979 |
| Secretary (25% time, Civil Service) | 5,300 | 5,732 |
| Student recruitment, brochure and poster | 6,000 | 3,400 |
| Miscellaneous expenses (telephone, postage, stationery, etc.) | 6,000 | 6,300 |
| Equipment (computer, office equipment) | 5,000 | |
| | $34,300 | $28,411 |

*Full operation costs include 4% annual inflationary increase

## 4. Identification of the Geographic Area the Program is Designed to Serve

Enrollees are expected from Minnesota and from throughout the world. Program graduates are expected to obtain employment in Minnesota and throughout the world.

## 5. Justification for Implementation of the Program

### a. Needs

**Educational:** In today's world, conservation biologists must understand the concepts and arguments of economists and social scientists to carry out sound conservation efforts. At this time no single program at the University of Minnesota integrates these fields to provide the necessary practical training in each area. Under the current system of programs, an education in conservation biology requires a patchwork of courses. A conservation biology program at the University of Minnesota would address these educational needs by offering students a comprehensive foundation in biological and social aspects of conservation biology.

We believe that 10 to 15 students currently in The Graduate School would have elected to major in conservation biology, had the option been available. We estimate that 8-10 students will be admitted to the masters and Ph.D. programs each year with the goal of sustaining an enrollment of 30-40 students annually. At this time we are unable to estimate the number of minors associated with the program.

**Social:** The choice of whether or not to save endangered species, ecosystems, or basic ecological processes are societal issues of paramount importance. In the area of environmental policy, wise decisions can be made by private and governmental agencies, and elected officials only if there is a solid base of scientific information. That information derives from the efforts of well trained individuals in the field of conservation biology. To the extent that we succeed in providing the necessary training, we shall also succeed in meeting some of the societal needs for a better, non-deteriorating world, a world worth passing on to our children's children.

Recognizing the problems inherent in deciding what is good for others, we nevertheless perceive four major kinds of benefits that an outstanding program in conservation biology might offer:

- There would be a promotion of ecologically sound, environmentally and socially sustainable, natural resource management.
- There would be an increased awareness of the need for and the difficulties associated with conservation efforts.
- There would be an increased effort and pressure to create new institutional structures to manage our natural resources more effectively.
- We can expect that an increase in scientifically based knowledge in this field will facilitate the establishment of research priorities, with a greater exchange of ideas and information among interrelated disciplines.

**Employment Opportunities:** Letters (Appendix B) supporting the establishment of a graduate program in Conservation Biology indicate an immediate state, national and international need for graduates.

## b. Duplication with Other Programs

Elements of conservation biology are found in several existing graduate programs at the University of Minnesota. Faculty in Departments of Ecology and Behavioral Biology, Forest Resources, Botany, and Fisheries and Wildlife currently are involved in projects that would fit in a conservation biology program. The graduate program in wildlife conservation comes closest to being a conservation biology program, but that program is responsible largely for research and teaching on the conservation of vertebrates and does not span the broad range of topics and approaches incorporated in the conservation biology program.

Conservation biology programs are developing rapidly at other universities. In many instances the existing University of Minnesota graduate programs mentioned above have documented cases of losing outstanding applicants to these other universities because of the lack of a conservation biology program at Minnesota. The following table lists universities with programs in conservation biology either in place or under development.

| Institution | Status |
|---|---|
| Montana State University | Operational |
| University of Florida | " |
| San Francisco State | Under development |
| U. of California-Davis | " |
| Arizona State University | " |
| University of Michigan | " |
| Stanford | " |
| University of Wisconsin | " |

The program at Minnesota promises to be as good as or better than those at these other institutions because of the larger number of widely recognized faculty currently working in conservation biology. In contrast to the other institutions, Minnesota will have the advantage of a strongly integrated program between the biological and social aspects of conservation biology because of the particular strengths and interests of our faculty in both areas. This group of faculty includes both regular University faculty and adjunct faculty. Many adjunct faculty are recognized leaders in conservation biology. It is likely that the University of Minnesota would be highly competitive in attracting outstanding students.

## c. Utilization and Capacity of Existing Programs

The number of students in similar programs at other institutions is unknown. The existing programs are less that two years old.

Graduate student interest in conservation biology is currently very high at the University of Minnesota. Over 25 percent of the current applicants for admission to Ecology and over 40 percent of the current applicants for admission to Wildlife specify an interest in conservation biology in their applications. In 1986 and 1987 several excellent students chose to enroll in formal programs in conservation biology at other universities rather than come to Minnesota, even though they had been offered Graduate School Fellowships at Minnesota.

An initial student / faculty ratio of 1:2 is anticipated. The optimum ratio would be about 1:1.

## d. Placement Data for Graduates of Similar Programs

Current employment rates of MS and PhD graduates in such related programs as Ecology, Fisheries, Forest Resources and Wildlife Conservation are very high. For example, in 1988 12 of the 13 graduates in Ecology obtained positions related to their major field of study. Similarly, all of the 10 graduates in Fisheries and Wildlife in 1987 and 1988 obtained positions in their major fields of study. Employment rates were lower in the 1970s and early 1980s, but have been increasing significantly in the past three years. Employment in the 1990s is expected to continue at the present high rate.

Employment has traditionally been with government agencies and in academia.

## e. Assessment of How Education and Training Needs are Currently Being Served

The world is changing rapidly and concern for the planet, Earth, is widespread. Informed decision making is urgently required throughout the world to meet current and future needs related to the environment, health and the world economy. We must train professionals now to make and implement sound decisions.

Need for a graduate program in conservation biology stems from rapid developments in this field, such as the establishment of the Society for Conservation Biology in 1986, publication of Volume 1 of the Society's journal, Conservation Biology, in 1987, and recent publication of several books titled Conservation Biology. The International Union for the Conservation of Nature and Natural Resources (IUCN), Agency for International Development (AID), The Nature Conservancy and many other national and international organizations are currently involved in many aspects of conservation biology. Such organizations are potential sources of internships and permanent employment of graduates. These developments indicate that the scientific community, as well as government and private agencies, recognize the importance of developing the scientific and technical means for the protection, maintenance, and restoration of life on the earth.

# SECTION III

# PROPOSAL TO ESTABLISH A MS / PhD GRADUATE PROGRAM IN CONSERVATION BIOLOGY

## A. Introduction

### Mission Statement

Conservation biology at the University of Minnesota has two complementary aims leading to a unique interdisciplinary program. The first is to provide students with sound graduate training in the biological sciences relevant to the conservation of plants, animals, and ecosystems on a global basis. The second is to expose students to the social, political and economic sciences that relate to both the recognition and solution of conservation problems. The overall objective of the program is to educate students who will understand the causes of conservation problems and will be well prepared to develop solutions or approaches to these problems that are scientifically and environmentally sound, and likely to be acted upon or implemented by existing social and political structures.

### Motivation

The world is changing rapidly and concern for the planet, Earth, is widespread. Informed decision making is urgently required throughout the world to meet current and future needs related to the environment, health and the world economy. We must train professionals now to make and implement sound decisions.

Need for a graduate program in conservation biology stems from rapid developments in this field, such as the establishment of the Society for Conservation Biology in 1986, publication of Volume 1 of the Society's journal, Conservation Biology, in 1987, and recent publication of several books titled Conservation Biology. The International Union for the Conservation of Nature and Natural Resources (IUCN), Agency for International Development (AID), The Nature Conservancy and many other national and international organizations are currently involved in many aspects of conservation biology. Such organizations are potential sources of internships and permanent employment of graduates. These developments indicate that the scientific community, as well as government and private agencies, recognize the importance of developing the scientific and technical means for the protection, maintenance, and restoration of life on the earth (see supporting letters in Appendix B regarding need for this graduate program).

Graduate student interest in conservation biology is currently very high at the University of Minnesota. Over 25 percent of the current applicants for admission to Ecology and over 40 percent of the current applicants for admission to Wildlife specify an interest in conservation biology in their applications. In 1986 and 1987 several excellent students chose to enroll in formal programs in conservation biology at other universities rather than come to Minnesota, even though they had been offerred Graduate School Fellowships at Minnesota.

### Background

The field of conservation biology is undergoing an extraordinary transformation with respect to the number of subdisciplines it encompasses and its perceived importance as a scientific endeavor. Once the province of person interested mainly in the preservation of rare and endangered species, it now has a much broader following. Its emergence as a scientific discipline began in the early 1970s when people realized that the study of global ecological problems and species extinctions required skills in addition to those traditionally found in such programs as forestry, fisheries, and wildlife management. This coincided with the development of new theories in the fields of community and population ecology and population genetics. Examples are the concepts of island biogeography, population genetic structure, species diversity, and extinction patterns.

In addition to its natural concerns for the survival and propagation of rare and endangered species, conservation biology today includes the analysis and maintenance of entire ecosystems and analysis of the basic processes that constitute the functional components of ecosystems. Its broad scope is a logical derivative of our knowledge that the continuation or disruption of such processes on a global scale causes life on this planet to hang in the balance.

The study of these complex interactions involves not only biologists of all types, both basic and applied, but also economists, and social and political scientists. It involves the most modern techniques of molecular genetics and satellite imagery along with the classical methods of faunal and floristic collection and behavioral observation. It has grown from being the activity of a minority group into a principal concern of biologists worldwide.

The need for excellent training in conservation biology is great for several reasons. The rate of habitat destruction in all geographic regions of the world, and especially in the tropics, is galvanizing efforts to provide a new level of sophistication in the training of students in conservation biology. Biological diversity is decreasing dramatically as the rate of extinction of species has risen (even to crisis levels in some regions) during the last decade. This is primarily a result of human interference with natural patterns and processes. We now recognize that local ecosystem change directly affects global systems. Examples include increased carbon dioxide concentrations in the atmosphere leading to the greenhouse effect, increased air pollution leading to acid rain, and the decrease in ozone concentrations in the upper atmosphere leading to increased exposure to ultraviolet radiation. These global effects play a major role in promoting the need for improved conservation efforts worldwide.

Nationally and internationally, the need to balance conservation and economic development is stronger today than ever before, but the demands are also much greater. Not only are there major changes in the way the academic community is viewing the conservation effort, but also there are many more governmental and private organizations that have become involved. The list is long but among the most influential are the Environmental Protection Agency, National Academy of Science, the National Science Foundation (which is considering the establishment of a conservation biology division), the World Wildlife Fund, the Nature Conservancy, Conservation International and even the World Bank. Their programs are growing exponentially, but trained professionals are not available because there are currently few graduate programs.

Here at the University of Minnesota we are fortunate in having many faculty whose interests include conservation biology. The majority of these individuals are found in the Colleges of Agriculture, Natural Resources, and Biological Sciences. Others are affiliated with the Humphrey Institute of Public Affairs and the College of Liberal Arts. A framework to facilitate interaction among these faculty is urgently needed.

This broadly based pool of talent offers the potential to form an excellent program in conservation biology at the University of Minnesota. In the best interests of the University and of the state, it is both timely and urgent that we do so. Many of our current students have strong interests in the field of conservation biology and over the past few years there has been a growing trend of losing outstanding students, both before and after matriculation, because we do not have such a program. An interdisciplinary graduate program in conservation biology, integrating the interests of individuals in the academic units mentioned above, and others will help the University of Minnesota to establish its preeminence in this field.

## B. The Proposed Program

### Program Objectives

Establishment of the graduate program in conservation biology will accomplish the following objectives: 1) Recruit a group of the most highly qualified and motivated conservation biology oriented graduate students to each entering class. 2) Provide a core curriculum designed to give students a comprehensive foundation in biological and social aspects of conservation biology. 3) Provide the basis for the selection of suitable elective courses which will be achieved by a centralized listing in the Graduate School Bulletin. 4) Provide a forum for new ideas and information in conservation biology through seminars and discussion groups. 5) Provide a program with strong international emphasis because of the global nature of many problems in conservation biology. 6) Provide a selection of research training opportunities directed by a faculty distinguished in contemporary conservation biology research. 7) Provide practical training in conservation biology through internships with national and international agencies. 8) Foster productive collaboration among current and newly recruited conservation biologists at the University of Minnesota. 9) Facilitate cooperation among University and agency programs and groups relevant to conservation biology. These include the Center for International Food and Agricultural Policy, Forestry for Sustainable Development, Center for Natural Resource Policy and Management, Hubert H. Humphrey Institute, Minnesota Zoological Garden and The Nature Conservancy.

### Admission Requirements

Applicants to the program in conservation biology must have a Bachelor's degree or its foreign equivalent from a recognized college or university and must meet the admission requirements of the Graduate School. A baccalaureate degree in biology or a closely related field is preferred. Applicants with a baccalaureate degree in another field may be accepted, but will be required to make up selected courses in biology. In general, Ph.D. applicants holding a bachelor's degree will be expected first to complete a Master's degree in Conservation Biology. A statement of career goals and three letters of recommendation evaluating the applicant's potential for graduate study are required. The Graduate Record Examination is strongly recommended, but not required. Applications will be screened and ranked by a Program Consultative Committee (PCC) which will be elected by the conservation biology graduate faculty.

### Admission Process

The DGS will examine applications to the program and submit them to the PCC members who will evaluate the applications and provide a written recommendation to the DGS. If there are differences of opinion among the evaluators, the DGS may send the file to additional program faculty or convene the graduate faculty to discuss the applicant's file. The final recommendation is the prerogative of the DGS after consultation with the PCC. If an applicant is determined as acceptable, all graduate faculty will be informed that the file is available for their study and comments. If an applicant is found to be unacceptable, the DGS will recommend to the Graduate School that he/she be rejected.

Faculty members who wish to advise an acceptable student will confer with their department chair to insure the availability of space and other required resources. The faculty member will then request the DGS to recommend admission to the Graduate School. An applicant will be admitted to graduate student status after final approval by the Graduate School.

### Student Advising

An initial advisor will be identified through the admission procedure. If a subsequent change is necessary, that change must be approved by the DGS and the new advisor in consultation with the old advisor and the student. Each student will also be assigned a Student Advisory Committee (SAC) consisting of the advisor and two other members of the conservation biology graduate faculty, appointed by the DGS after consultation with the student and the advisor. The SAC provides advice on course selection, on the research topic or independent studies, and on the official program. Members of the SAC frequently become members of the examining committee. The advisor chairs meetings of the SAC and makes final decisions. The DGS may make changes in the SAC deemed to be in the best interest of the student and the conservation biology program.

The advisor assumes advisory and administrative responsibility for an individual student's program, including recommendations regarding program content and student progress after consultation with the SAC and student. The student will schedule a meeting of the SAC at least once a year to review the student's progress.

## The Curriculum

The curriculum in conservation biology is designed to give a comprehensive foundation in both biological and social aspects of conservation biology. Courses will be taken in three categories:

a) Core courses
b) Biological aspects
c) Social aspects

Masters students in Plan A must take 10 credits in the core courses and 10 credits in either category b or c to fulfill the major, and 8 credits in related fields in the other category. Students wishing to complete a designated minor must complete 9 or more credits in a single field. A designated minor must be approved by the DGS in the field (see sample programs, Appendix A).

Plan B students must select 16 additional credits, including credits arranged for Plan B papers, to complete the minimum of 44 credits.

Ph.D. candidates will take the core courses and be expected to show competency in both the biological and social sciences. Students, with their advisor and SAC, will develop a program emphasizing, but not limited to, the courses listed in b and c. The 18 quarter credits required in the supporting program or minor will emphasize, but not be limited to, the courses listed in categories b or c. With a traditional minor, the 18 credits will be in a single field.

For both Ph.D. and M.S. students, thesis research may require proficiency in supporting areas such as statistics, computing and communication.

### a) Core Courses

CB(FW) 8452. Conservation Biology
(Currently being offerred)
CB 8xxx or PA 5011. Policy Analysis
(Currently being offerred)
CB 8xxx. Decision Making in Conservation Biology
(Modification of seminar in Ecology and Behavioral Biology)
CB 8xxx. Sustainable Development
(Modification of seminar in Forest Resources)
CB 8xxx. International Conservation and Development Issues (New course, to be taught by team of faculty)

### b) Biological Aspects

AnSc 5322. Physiology of Reproduction
AnSc 8332. Preservation of Spermatozoa and Embryo
Bot 5131. Survey of Plant Physiology
EBB 5014. Ecology of Plant Communities
EBB 5016. Ecological Plant Geography

EBB 5051. Analysis of Populations
EBB 5608. Ecosystems: Form and Function
EBB 5613. Assessing the Ecological Effects of Pollution
EBB 5814. Community Structure and Function
EBB 5817. Vertebrate Ecology
EBB 5820. Wetland Ecology
GCB 5033. Population and Quantitative Genetics
Geog 5423. Advanced climatology
Geog 5444. Geography of Water Resources
Geog 5562. Introduction to Geographic Information Systems
FR 5130. Geographic Information Systems in Natural Resource Planning
FR 5152. Forest Genetics
FR 5153. Advanced Forest Hydrology
FR 5200. Aerial Photo Interpretation
Fr 5220. Remote Sensing, Forest Resources Inventory
FR 5262. Remote Sensing of Natural Resources
FR 5412. Advanced Remote Sensing
FR 5458. Water Quality Management: Ecosystem Approaches
FR 8213. Topics in Wildland Hydrology
FW 5455. Aquaculture
FW 5601. Assessment and Management of Vertebrate Populations
FW 5603. Wildlife Habitat Relationships and Management
FW 5604. Fishery Management in Inland Waters
FW 8574. Wildlife Management: Upland Game
FW 8575. Wildlife Management: Waterfowl
FW 8576. Wildlife Management: Large Mammals
FW 8579. Ecosystem Analysis and Simulations: A Numerical Approach

c) **Social Aspects**

AgEc. 5650. Economics of Natural Resource Policy
AgEc. 5790/Soc 5675. World Food Supply Problems
AgEc. 8278. Agricultural and Economic Development
Anth 5115. Economic Anthropology
Anth 5116. Cultural Ecology
Anth 5117. Anthropology of Resource Management
Anth 5151. Cultural Change and Development
Anth 8450. Seminar: Development Theories and Policies
Econ 5611. Resource and Environmental Economics
FR 5226. Forest Economics and Planning
FR 5240. Natural Resource Policy and Administration
FR 5241. Natural Resource Management: Political and Administrative Processes
FR 5250 Role of Renewable Natural Resources in Developing Countries
FR 8211. Seminar: Natural Resource Policy Issues
FW 5602. Fisheries and Wildlife Planning and Policy
Geog 8340. Seminar: Land Use Planning
Geog 8344. Seminar: Federal Public Land Policy
Geog 8350. Seminar: World Population Problems
PA 5200. Introduction to Planning
PA 5202. Planning Methods
PA 5230. Strategic Planning andd Management

PA 5721. Environmental Policy I
PA 5722. Environmental Policy II
Pol 5523. The Politics of the Regulatory Process
Pol 5886. International Diplomacy, Bargaining, and Negotiation
Spch 5451. Processes of Intercultural Communication

## Completion Requirements and Standards

Master's Degree Students in consultation with the advisor and the SAC may select a Plan A (with thesis) program or a Plan B (without thesis) program as defined in the Graduate School Bulletin. The student must file an official program no later than the third quarter of residence. Students are expected to maintain at least a 3.0 grade point average. Programs should be completed in approximately two years. A comprehensive final oral examination is administered by a committee including at least two faculty from the major field and one from the minor or related field.

Doctor of Philosophy General requirements for the Ph.D are given in the Graduate School Bulletin.

The official program should be filed by the end of the second year. The written preliminary examination should be taken no later than 2.5 years after beginning the program. The graduate faculty will be notified of the examination and invited to submit questions. Questions will be selected by a member of the PCC in consultation with the advisor. The exam will include questions from topics covered in course categories a, b, and c, above. Each question will be graded and returned to the PCC member by the faculty member who submitted it. The entire graded examination will be available for perusal by members of the graduate faculty. After reviewing the evaluations, the PCC and DGS will determine pass/fail. In the case of failure the PCC and DGS will determine if the student will be permitted to retake the exam and continue in the program.

The preliminary oral examination should be taken within the first two quarters after passing the written examination and after completion of the minor or supporting program and sufficient amounts of course work in the major. It should generally be taken before significant amounts of time have been spent on thesis research.

A thesis defense as specified by the Graduate School is required for completion of the degree. Generally the Ph.D. should be completed in 3-4 years after the Master's degree.

The heart of graduate education for the Ph.D. in conservation biology will be extensive research under the supervision of one or more members of the graduate faculty. This research will be guided to promote submission of manuscripts to prominent, peer reviewed journals. Sample thesis titles are:

- Extinction in subdivided habitats.
- Implications of acid precipitation on endangered species in forest habitats.
- Restoring island ecosystems: the potential of parasites to control introduced mammals.
- Gradient analysis in nature reserve design.

The student must participate in the teaching of undergraduate courses in the major area. The time at which this is done and the type of participation will be decided by the advisor in concert with the student and the graduate faculty. A one quarter assignment or its equivalent as a teaching assistant with classroom teaching responsibilities will be sufficient.

General Requirements Students must complete the residency and thesis credit requirements mandated by the Graduate School. There is no language requirement, but under certain circumstances, the advisor in consultation with the SAC may require that the student study a specified language.

**Internship** The internship is intended to be an important and attractive part of the Conservation Biology program. Both MS and PhD students will participate in a full-time internship of three months, or its equivalent. The internship may be waived for individuals whose past experience makes it unnecessary.

The internship will provide experience in a professional environment and give direct exposure to the ethics and responsibilities of practice. Further, it will build confidence in synthesis and application of course work. It is envisaged that the internships will broaden the range of professional contacts and help foster a group spirit among students in the program. For example, an annual retreat could draw on the experience of those students who have completed an internship, and prepare novices for the experience.

Faculty participating in the program have extensive connections, both within North America and abroad, and are interested in promoting conservation biology in developing countries. They will draw on these to organize the internships and, through their own interest and involvement, will ensure quality control. It is hoped that funding will be obtained for travel and subsistence, where necessary. (see letters in Appendix B)

Possible agencies sponsoring internships:

- Agency for International Development
- American Association for the Advancement of Science
- American Institute for Indian Studies
- Conservation International
- International Species Inventory System
- International Union for the Conservation of Nature
- Minnesota Department of Natural Resources
- National Audubon Society
- National Wildlife Federation
- Smithsonian Institution
- The Nature Conservancy
- Wildlife Institute in India (teaching internship)
- World Bank

**Minors** A Ph.D. minor for students in other fields may be obtained by completing the core courses plus 8 credits in categories b and/or c. The core courses will constitute a minor for plan A or B masters degrees in other fields.

## C. Educational and Social Need for a Program in Conservation Biology

**Educational Needs**

In today's world, conservation biologists must understand the concepts and arguments of economists and social scientists to carry out sound conservation efforts. At this time no single program at the University of Minnesota integrates these fields to provide the necessary practical training in each area. Under the current system of programs, an education in conservation biology requires a patchwork of courses. A conservation biology program at the University of Minnesota would address these educational needs by offering students a comprehensive foundation in biological and social aspects of conservation biology.

We believe that 10 to 15 students currently in The Graduate School would have elected to major in conservation biology, had the option been available. We estimate that 8-10 students will be admitted to the masters and Ph.D. programs each year with the goal of sustaining an enrollment of 30-40 students annually. At this time we are unable to estimate the number of minors associated with the program.

## Social Needs

The choice of whether or not to save endangered species, ecosystems, or basic ecological processes are societal issues of paramount importance. In the area of environmental policy, wise decisions can be made by private and governmental agencies, and elected officials only if there is a solid base of scientific information. That information derives from the efforts of well trained individuals in the field of conservation biology. To the extent that we succeed in providing the necessary training, we shall also succeed in meeting some of the societal needs for a better, non-deteriorating world, a world worth passing on to our children's children.

Recognizing the problems inherent in deciding what is good for others, we nevertheless perceive four major kinds of benefits that an outstanding program in conservation biology might offer:

- There would be a promotion of ecologically sound, environmentally and socially sustainable, natural resource management.
- There would be an increased awareness of the need for and the difficulties associated with conservation efforts.
- There would be an increased effort and pressure to create new institutional structures to manage our natural resources more effectively.
- We can expect that an increase in scientifically based knowledge in this field will facilitate the establishment of research priorities, with a greater exchange of ideas and information among interrelated disciplines.

## D. Comparison with Similar Programs

Elements of conservation biology are found in several existing graduate programs at the University of Minnesota. Faculty in Departments of Ecology and Behavioral Biology, Forest Resources, Botany, and Fisheries and Wildlife currently are involved in projects that would fit in a conservation biology program. The graduate program in wildlife conservation comes closest to being a conservation biology program, but that program is responsible largely for research and teaching on the conservation of vertebrates and does not span the broad range of topics and approaches incorporated in the conservation biology program.

Conservation biology programs are developing rapidly at other universities. In many instances the existing University of Minnesota graduate programs mentioned above have documented cases of losing outstanding applicants to these other universities because of the lack of a conservation biology program at Minnesota. The following table lists universities with programs in conservation biology either in place or under development.

| Institution | Status |
|---|---|
| Montana State University | Operational |
| University of Florida | " |
| San Francisco State | Under development |
| U. of California-Davis | " |
| Arizona State University | " |
| University of Michigan | " |
| Stanford | " |
| University of Wisconsin | " |

The program at Minnesota promises to be as good as or better than those at these other institutions because of the larger number of widely recognized faculty currently working in conservation biology. In contrast to the other institutions, Minnesota will have the advantage of a strongly integrated program between the biological and social aspects of conservation biology because of the particular strengths and interests of our faculty in both areas. This group of faculty includes both regular University faculty and adjunct faculty. Many adjunct faculty are recognized leaders in conservation biology. It is likely that the University of Minnesota would be highly competitive in attracting outstanding students.

## E. Quality Control

### Qualifications of Graduate Faculty

The Graduate School constitution requires that membership on a graduate faculty should be based on continuing active involvement and competency in the graduate program and the quality of such involvement. Election to the graduate faculty in conservation biology shall be granted to those faculty of the University of Minnesota who accept and fulfill the responsibilities indicated below:

1) They should be actively engaged in conservation biology research. Evidence of such should include such things as recent grant support, financial support of graduate students or postdoctoral fellows, and recent publications in refereed journals.
2) They should be willing and able to act as advisors to degree candidates.
3) They should direct or provide a major contribution to at least one graduate level course in the area of conservation biology at least once every five years.
4) They should present one research seminar on conservation biology at the University of Minnesota at least once every five years.
5) They should be available for service on both standing and ad hoc conservation biology program committees.

Periodically, but at no less than five-year intervals, the conservation biology DGS and the PCC will review the program related activities of the conservation biology graduate faculty. If individuals are identified that have not fulfilled the above obligations during the past five years, the DGS will meet with those faculty to arrange for increased contributions to the program. Those faculty who have not fulfilled their responsibilities to the program and who cannot increase their activities, will be requested to resign from the conservation biology graduate faculty. If such faculty do not wish to resign, the DGS in consultation with the PCC will present the case for review by the dean of the Graduate School in accordance with established procedures.

### Governance of the Program

The Director of Graduate Studies (DGS) will have primary administrative responsibility for the conduct of the program. The DGS will be elected by a majority vote of the program faculty and will serve for a period of 3 years. The DGS cannot serve for more than two consecutive terms. Substantial departures from existing program guidelines will be subject to majority approval of the program faculty. On matters such as admission of new graduate students, assignment of advisors and the Advisory Committee, and major issues or problems identified by the DGS or other faculty, the DGS will consult with the PCC. The three members of the PCC will be elected by the graduate faculty to serve 3-year terms, staggered such that one person is elected each year. The DGS may select an alternate in the absence of an elected PCC member. The DGS will communicate with department chairs regarding decisions to accept new students or terminate existing students. The department chairs will evaluate the availability of adequate space and resources.

**Program Evaluation**

The graduate program in conservation biology will be evaluated primarily by periodic internal and external reviews. The program faculty will take all steps necessary and possible to remedy deficiencies identified by such reviews. There are currently no accrediting or certification agencies for conservation biology, but discussions in the National Science Foundation and the National Academy of Science as well as programs at other universities are being monitored to keep abreast of developments.

## F. Implementation

**Time Schedule**

It is proposed that the program in conservation biology be initiated September 1, 1990.

**Initial Faculty**

The attached list of individuals who have indicated an interest in conservation biology and a commitment to the requirements for membership on the conservation biology graduate faculty will comprise the initial faculty. The first DGS will be elected from this faculty. This group is broadly representative of the field of conservation biology and covers all of the important areas. Upon approval of this proposal, the DGS will solicit applications for graduate faculty status in appropriate units of the University, especially in the social sciences, and the current faculty will act upon these applications in accordance with the membership criteria established above.

**University Resources**

Recurring expenses are itemized below. These figures are based on 30-40 graduate students at full strength. The program will probably admit 10 new students per year and will compete for fellowships from the graduate school.

| | Year 1 | Full operation* |
|---|---|---|
| Invited seminar speakers | $12,000 | $12,979 |
| Secretary (25% time, Civil Service) | 5,300 | 5,732 |
| Student recruitment, brochure and poster | 6,000 | 3,400 |
| Miscellaneous expenses (telephone, postage, stationery, etc.) | 6,000 | 6,300 |
| Equipment (computer, office equipment) | 5,000 | |
| | $34,300 | $28,411 |

*Full operation costs include 4% annual inflationary increase

**Extra-University Resources**

Research assistantships for most of the graduate students will be obtained from research grants held by the students' advisors. Funding will be sought through a major grant proposal to provide a portion of the DGS salary to fully implement the program by developing contacts with appropriate agencies for establishing internships and other opportunities. That funding will also be used to provide initial fellowship support, to stimulate development of innovative courses, and to purchase necessary equipment. Graduate faculty anticipate generating substantial external research support.

A promise of start-up funds ($2,000) has been obtained from the Captive Breeding Specialist Group, International Union for the Conservation of Nature and Natural Resources (see Appendix B).

## Faculty Participants in the Conservation Biology Graduate Program

**Agricultural and Applied Economics**
- Ted Graham-Tomasi

**Anthropology**
- Luther Gerlach

**Ecology and Behavioral Biology**
- Peter Abrams
- Franklin Barnwell
- Elmer Birney
- Kendall Corbin
- Edward Cushing
- Margaret Davis
- Frank McKinney
- Patrice Morrow
- Donald Siniff
- Tony Starfield
- John Tester
- Harrison Tordoff

**Entomology**
- David Andow
- Ralph Holzenthal

**Fisheries**
- Ira Adelman
- Anne Kapuscinski

**Forest Resources**
- Sean Ahearn
- Marvin Bauer
- Charles Blinn
- Glen Furnier
- Allen Lundgren
- James Perry

**Geography**
- Dwight Brown

**Hubert H. Humphrey Institute of Public Affairs**
- Dean Abrahamson
- Donald Geesaman

**Minnesota Zoological Garden**
- Tom Foose

**U. S. Fish and Wildlife Service**
- L. David Mech

**Veterans Administration Medical Center**
- Ulysses Seal

**Wildlife Conservation**
- Francesca Cuthbert
- Peter Jordan
- David Smith

# APPENDIX A

## SAMPLE GRADUATE PROGRAMS

### Master of Science, Plan A: Total credits 31

**Major: Conservation Biology**

| | | | |
|---|---|---|---|
| CB | 8452 | Conservation Biology | 2 credits |
| CB | 8xxx | Decision Analysis | 2 |
| CB | 8xxx | Conservation Policy | 2 |
| CB | 8xxx | Sustainable Development | 2 |
| CB | 8xxx | International Conservation & Development Issues | 2 |
| EBB | 5041 | Ecology of Plant Communities | 5 |
| EBB | 5016 | Ecological Plant Geography | 5 |
| | | **Total major credits** | 20 |

**Minor: Anthropology**

| | | | |
|---|---|---|---|
| Anth | 5116 | Cultural Ecology | 4 |
| Anth | 5151 | Cultural Change & Development | 4 |
| Anth | 8450 | Seminar: Development Theories & Policies | 3 |
| | | **Total minor credits** | 11 |

### Master of Science, Plan B: Total Credits 49

**Major: Conservation Biology**

| | | | |
|---|---|---|---|
| CB | 8452 | Conservation Biology | 2 credits |
| CB | 8xxx | Decision Analysis | 2 |
| CB | 8xxx | Conservation Policy | 2 |
| CB | 8xxx | Sustainable Development | 2 |
| CB | 8xxx | International Conservation & Development Issues | 2 |
| AgEc | 5650 | Economics of Natural Resource Policy | 3 |
| FR | 5226 | Forest Economics & Planning | 5 |
| FR | 8211 | Seminar: Natural Resource Policy Issues | 3 |
| FR | 5200 | Aerial Photo Interpretation | 3 |
| FR | 5262 | Remote Sensing of Natural Resources | 4 |
| FR | 5130 | Geographic Information Systems in Natural Resource Planning | 3 |
| | | **Total major credits** | 31 |

**Related Fields**

| | | | |
|---|---|---|---|
| Geog | 5432 | Advanced Climatology | 4 |
| Geog | 5444 | Geography of Water Resources | 4 |
| EBB | 5820 | Wetland Ecology | 10 |
| | | **Total related field** | 18 |

## Doctor of Philosophy: Total Credits 68

### Major: Conservation Biology

| | | | |
|---|---|---|---|
| CB | 8452 | Conservation Biology | 2 credits |
| CB | 8xxx | Decision Analysis | 2 |
| CB | 8xxx | Conservation Policy | 2 |
| CB | 8xxx | Sustainable Development | 2 |
| CB | 8xxx | International Conservation & Development Issues | 2 |
| EBB | 5051 | Analysis of Polulations | 4 |
| EBB | 5817 | Vertebrate Ecology | 5 |
| GCB | 5033 | Population & Quantitative Genetics | 4 |
| FW | 5604 | Fishery Management in Inland Waters | 3 |
| FW | 5601 | Assessment & Management of Vertebrate Populations | 5 |
| FW | 8575 | Wildlife Management: Waterfowl | 3 |
| FW | 8576 | Wildlife Management: Large Mammals | 4 |
| FW | 8579 | Ecosystem Analysis & Simulations: A Numerical Approach | 5 |
| FR | 5240 | Natural Resource Policy & Administration | 3 |
| FR | 5250 | Role of Renewable Natural Resources in Developing Countries | 2 |
| | | **Total major credits** | **48** |

### Supporting Program

| | | | |
|---|---|---|---|
| Ag Ec | 5790 | World Food Supply Problems | 3 |
| Econ | 5611 | Resource & Environmental Economics | 4 |
| Geog | 8350 | Seminar: World Population Problems | 3 |
| PA | 5721 | Environmental Policy I | 3 |
| PA | 5722 | Environmental Policy II | 3 |
| Spch | 5451 | Process of Intercultural Communication | 4 |
| | | **Total Supporting Program** | **20** |

## APPENDIX B

## LETTERS OF SUPPORT

**From within the University of Minnesota:**

P. T. Magee, Dean
College of Biological Sciences

G. Edward Schuh, Dean
Hubert H. Humphrey Institute of Public Affairs

Richard A. Skok, Dean
College of Natural Resources

Ira R. Adelman, Head
Department of Fisheries & Wildlife

Franklin H. Barnwell, Head
Department of Ecology & Behavioral Biology

Alan R. Ek, Head
Department of Forest Resources

**From other organizations:**

Sharon Pfeifer, Environmental Advisor
Agency for International Development

U. S. Seal, Chairman
Captive Breeding Specialist Group
International Union for the Conservation of Nature and Natural Resources

Lee A. Pfannmuller, Research Supervisor
Nongame Wildlife Program
Minnesota Department of Natural Resources

Margaret A. Kohring, Executive Director
Minnesota Chapter
The Nature Conservancy

UNIVERSITY OF MINNESOTA
TWIN CITIES

College of Biological Sciences
Office of Development
217 Snyder Hall
1475 Gortner Avenue
St. Paul, Minnesota 55108

March 27, 1989

Dr. John Tester
Ecology & Behavioral
Biology
304 Zoology Building
Minneapolis Campus

Dear John,

I strongly support the proposal to establish a Program in Conservation Biology. This program will fill an important void in the State, and the resources the University can bring to it are of excellent quality. In making my plans in CBS for the 1989-1990 budget, I will try to find some way to give it partial support.

Yours,

Pete
P. T. Magee
Dean

PTM:nml

Office of the Dean

UNIVERSITY OF MINNESOTA
TWIN CITIES

Hubert H. Humphrey Institute of Public Affairs
Humphrey Center
301 19th Avenue South
Minneapolis, Minnesota 55455
(612) 625-0669 or (612) 625-9505

March 28, 1989

John R. Tester
Department of Ecology and
Behavioral Biology
109 Zoology
318 Church Street SE

Dear Professor Tester:

I apologize for not getting back to you sooner on your memo of 17 February 1989. I have been behind for some time, now, and haven't had much luck digging out.

I hope to have phoned you on Monday, March 27. But this letter will confirm the interest of the Humphrey Institute in being associated with the proposed graduate program in conservation biology. We should be able to contribute importantly on both the public policy and planning side, as well as with our environmental courses.

As for faculty you might want to list for the program, I suggest Professors Dean Abrahamson and Donald Geesaman.

Please let me know if there is anything else we need to do to indicate our support for the program.

Regards.

Sincerely,

G. Edward Schuh

G. Edward Schuh

GES:jkk

Office of the Dean

UNIVERSITY OF MINNESOTA
TWIN CITIES

College of Natural Resources
235 Natural Resources Administration Building
2003 Upper Buford Circle
St. Paul, Minnesota 55108-1030

(612) 624-1234

March 27, 1989

Professor John Tester
Department of Ecology and Behavioral Biology
305 Zoology
Minneapolis Campus

Dear John:

This is written in support of the draft of the proposed Conservation Biology Graduate Program. Several faculty from the College of Natural Resources have been actively involved in the development of the program and hope to be members of the graduate faculty for this program when it is established. They see this as an important development to provide visibility to a special niche that the University is well position to address at the graduate level.

As you are aware, faculty in the College of Natural Resources are developing a request for submission to the PEW Charitable Trusts for support of a conservation and sustainable development educational project. This is a follow-up to the three year PEW grant that they currently have. My understanding is that they believe the Conservation Biology program would be a contribution to that effort.

I am sure that you and others are giving careful thought to how this program relates to existing graduate programs with similar interests and thrusts as this moves forward. It is important that we communicate as clearly as possible with potential students so that they make the choices that best suit their academic and career goals as they approach graduate studies.

On the matter of funding for the new program, I am unable to commit any financial support at this time. Our ability to provide such assistance in the future is, of course, dependent on the funding decisions for and by the University in the years immediately ahead. The involvement that faculty from this college finally have in this proposed graduate program will also be a factor that will influence such decisions.

Let me know if you have questions regarding my reply or other thoughts on this developing program.

Sincerely yours,

Dick

Richard A. Skok
Dean

c. G. Allen
A. Ek
I. Adelman
J. Perry
H. Gregersen

UNIVERSITY OF MINNESOTA
TWIN CITIES

College of Natural Resources
Department of Fisheries & Wildlife
200 Hodson Hall
1980 Folwell Avenue
St. Paul, Minnesota 55108

March 28, 1989

Professor John Tester
Department of Ecology and Behavioral Biology
305 Zoology
Minneapolis Campus

Dear John:

I am writing in support of the proposed Conservation Biology Graduate Program. As you know, a number of the faculty from this department were instrumental in the organization of efforts to develop the program, and I have been an active participant in the process. It follows that I and many of the fisheries and wildlife faculty enthusiastically support the proposed program and are likely to become members of the Conservation Biology graduate faculty.

Although I cannot provide direct financial support for the program, I strongly endorse our faculty's involvement. We will continue to teach one of the core courses, FW 8452 Conservation Biology: Genetic and Demographic Issues, and any other courses that seem appropriate for our faculty. Also, if a department faculty member is elected as director of graduate studies, I will provide secretarial support for the DGS activities. Finally, we will give equal opportunity to Conservation Biology graduate students advised by department faculty members in the competition for teaching assistantships and will similarly provide space.

Yours truly,

Ira R. Adelman

Ira R. Adelman
Professor and Head

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Ecology and Behavioral Biology
109 Zoology
318 Church Street S.E.
Minneapolis, Minnesota 55455
(612) 625-4466

March 19, 1989

Professor John Tester
Department of Ecology and Behavioral Biology
Minneapolis, MN 55455

Dear John:

I whole-heartedly endorse the effort that you are coordinating to develop a graduate Ph.D. program in Conservation Biology. We are both aware of the long-standing desire within Ecology and Behavioral Biology to get such a broadly-based program in place. It has been very gratifying at this point to see the great enthusiasm and commitment expressed by colleagues from across the University (and the outside community) to getting a high-quality program underway. I am reminded of the energizing and cohesive effect that planning for the Neurosciences program had on so many faculty at Minnesota.

Of course we shall attempt to support the program to whatever extent we can by creative use of departmental funds. We will be able to cover the expenses of two visiting seminar speakers in the area of conservation biology as part of our annual departmental program. These seminars can be advertised as jointly sponsored by the Conservation Biology program and EBB. We would expect to pool these contributions with similar ones of other departments and, hopefully, the Graduate School so as to produce an effective all-University seminar series. I can also offer 1/4-time secretarial support in the event that the Director of Graduate Studies for Conservation Biology is selected from our department. Have you given any thought to being a candidate for the position, John?

I hope the Conservation Biology program can be approved and implemented expeditiously. Our own EBB graduate students have certainly been enthused by the prospect of the new program and have made us all much more conscious of its great potential to attract top graduate students to Minnesota. Whether these students are recruited to Conservation Biology or to related programs, we should all benefit from the infusion of graduate talent in this exciting and rapidly developing new area.

Yours sincerely,

Frank

Franklin H. Barnwell
Professor and Department Head

UNIVERSITY OF MINNESOTA
TWIN CITIES

College of Natural Resources
Department of Forest Resources
110 Green Hall
1530 North Cleveland Avenue
St. Paul, Minnesota 55108
U.S.A.

March 13, 1989

Dr. John Tester
Professor
Department of Ecology and
Behavioral Biology
Minneapolis Campus

Dear John:

I am pleased to express my support for the **Conservation Biology** graduate program. As we have discussed in the past, there are several faculty in the Department of Forest Resources who are interested in participating as members of the graduate faculty in Conservation Biology. Further, several of our students are interested in the field of conservation biology and might join the effort as major or minor participants. As you are aware, here in the Department of Forest Resources we conduct an interdisciplinary graduate program. We also have plans to expand our program on the management aspects of conservation issues. As part of that development, we plan to present a major proposal to the Pew Charitable Trusts in the autumn of 1989. We anticipate that the Pew proposal would be developed by faculty from both the management and biology sides of conservation issues. The proposed Conservation Biology graduate program should be a valuable asset to the University, and will allow us to develop a stronger presentation to the Pew Trusts.

With regard to management of the Conservation Biology program, we would be pleased to attempt to recruit at least two seminar speakers per year in the field of conservation biology, with emphasis on forest resources. We would plan to advertise those seminars as being sponsored by the Department as well as the Conservation Biology graduate program. Secondly, in the event that the Director of Graduate Studies for the Conservation Biology program is a faculty member in the Department of Forest Resources, we would try to provide at least 1/4 time secretarial support for the program.

I hope these comments are helpful. I am supportive of the program, and appreciative of your efforts to get it underway.

Sincerely,

Alan R. Ek
Professor and Head

jms

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

12 January 1989

Dr. John Tester
Department of Ecology and Behavioral Biology
University of Minnesota
318 Church Street
Minneapolis, MN 55455

Dear Dr. Tester:

I was very pleased to hear that plans for a graduate level program in Conservation Biology at the University of Minnesota are materializing. There is a great need for individuals with advanced, interdisciplinary training in conservation biology to work in the field, at all governmental levels, and in national and international agencies and organizations.

The present demand for professional conservation biologists is growing. The Agency for International Development, for example, has been mandated by Congress to conserve tropical forests and biological diversity in those developing countries in which it works. For the last 3 years, Congress has earmarked money specifically for biological diversity-related projects. The expertise to conduct these conservation-oriented projects has been obtained through contractual agreements with universities, nongovernmental organizations, and other Federal agencies. As the international community increasingly realizes the magnitude of the conservation problem and the scarcity of time available, demand to meet the need is expected to continue to grow.

At the present time in Washington, many organizations and multilateral development banks are developing strategies as to how to tackle the conservation-development issues. Approaches include ground surveys, in situ experimentation, environmental training programs, extension service development, policy dialogue, technical assistance in the area of conservation biology techniques, etc. As can be seen from future approaches, the new cadre of professionals will best meet the need if they have broad, interdisciplinary training and experience. Thus, I was very pleased to see the array of interested University of Minnesota faculty expected to participate in the conservation biology program.

I would be pleased to provide any input to the new graduate program to ensure that future conservation biologists are equipped to meet the future demands in their field.

Sincerely,

Pfeifer

Sharon Pfeifer
Environmental Advisor and AAAS Fellow
ANE/PD/ENV

# Captive Breeding Specialist Group

Species Survival Commission
International Union for the Conservation of Nature and Natural Resources

U. S. Seal, CBSG Chairman

9 November 1988

John Tester
Department of Ecology
University Minnesota
109 Zoology Bld
318 Church St. SE
Minneapolis, MN 55455

Dear John,

I am delighted that you have agreed to undertake the task of leading the development of the Graduate Program in Conservation Biology. I believe that this program is an important and timely response to the rapidly developing interest in conservation oriented careers in biology. It is my guess that the program has an excellent prospect of developing into a full-fledged department within 10 years.

I sent Francie a copy of my CV (another is enclosed) in response to her query.

One of the programs sponsored by the CBSG, which I chair, can offer $2000 for assistance in startup of the program. We also will have money for support of qualified graduate students from countries in which we have programs.

Please let me know if there are other ways that I and the CBSG can be of assistance.

Best regards,

U. S. Seal

12101 Johnny Cake Ridge Road, Apple Valley, MN 55124 tel. (612)431-9325

STATE OF
MINNESOTA
DEPARTMENT OF NATURAL RESOURCES

500 LAFAYETTE ROAD • ST. PAUL, MINNESOTA • 55155-40____

DNR INFORMATION
(612) 296-6157

February 28, 1989

Dr. John Tester
Department of Ecology and Behavioral Biology
University of Minnesota
Zoology Building
318 Church Street S.E.
Minneapolis, Minnesota 55455

Dear Dr. Tester:

My work with several professors and students at the University has brought to my attention your involvement in developing a proposal to initiate a new graduate program in Conservation Biology. I'm writing to let you know of the Nongame Wildlife Program's strong support for this initiative.

Each year our program provides financial support to several graduate students conducting research on a variety of nongame issues. As our program has matured we have begun to expand beyond conducting baseline status surveys to investigating more complex resource management issues. Because an inter-discipline approach is essential to successfully address these concerns the training embraced by a program in Conservation Biology could be of considerable help to us in accomplishing our goals. Not only would students working on nongame conservation issues be an asset, the program would also become a source of well-trained interns and prospective employees. As natural resource agencies gradually move beyond the traditional single-species management approach, students with a broader background and training will become a valuable resource. Seminars and courses offered within the program will also benefit our DNR Staff by providing opportunities for interchange and additional coursework.

In short, we are excited at the prospect of adding a new program in Conservation Biology. The program will benefit our staff and Minnesota's nongame resource. Please feel free to call on us if we can provide any help in moving the program proposal along.

Sincerely,

Lee A. Pfannmuller

LEE A. PFANNMULLER
Research Supervisor
Nongame Wildlife Program

LAP:rcm

THE NATURE CONSERVANCY
MINNESOTA CHAPTER
1313 5th Street SE / Minneapolis, Minnesota 55414-1524 / (612) 379-2134

February 24, 1989

Dr. John Testor
Department of Ecology
305 Zoology Building
University of Minnesota
Minneapolis, MN 55455

Dear John,

The Nature Conservancy understands that the University of Minnesota is considering a conservation biology program.

The Nature Conservancy strongly supports the development of this program. At this time, it is not possible for the Conservancy to find graduates of the University of Minnesota who are fully equipped to meet the conservation biology needs of our organization.

Nor are we able to find students to do the types of applied research we want to fund. A program in conservation biology would provide the students for research and employees for The Nature Conservancy that we need. In addition, it would be a model program for the nation and on the cutting edge of what is being done in conservation.

I urge the University of Minnesota to establish a conservation biology program.

Sincerely,

Peg

Margaret A. Kohring
Executive Director

APR 10 1989

UNIVERSITY OF MINNESOTA
TWIN CITIES

Center for Biomedical Ethics
3-110 Owre Hall
UMHC Box 33
Harvard Street at East River Road
Minneapolis, Minnesota 55455

(612) 625-4917

April 10, 1989

Dean Robert Holt
The Graduate School
321 Johnston Hall
University of Minnesota
Minneapolis, MN 55455

Dear Dean Holt:

The Center for Biomedical Ethics is submitting to the Graduate School for review and approval a proposal for a free-standing Graduate Minor in Bioethics. The proposed Minor would offer doctoral and master's students a structured program of study in bioethics and the opportunity to receive formal recognition for their academic accomplishments in bioethics. We seek approval from the Graduate School to offer the Minor in Bioethics beginning in the Fall Quarter of 1989.

The University has long possessed rich educational and research opportunities in bioethics and cognate areas. The current proposal for a Graduate Minor in Bioethics seeks to assist students and faculty to take full advantage of the widely distributed resources and bring students and faculty together from diverse disciplines who share academic interests in bioethics.

The enclosed proposal for a Graduate Minor in Bioethics was developed by the staff of the Center for Biomedical Ethics with the assistance of approximately 25 faculty members from throughout the University, Dean Kenneth Zimmerman, and interested graduate students.

The number of inquiries routinely received from graduate students interested in studies in bioethics by the Center, the Department of Philosophy, the School of Nursing, and the School of Public Health gives us confidence that this minor has great potential to attract excellent students to the University. We also believe that the Minor in Bioethics will be a substantial contribution to the University's commitment to scholarship and education in bioethics signaled by the formation of the Center for Biomedical Ethics in 1985.

Thank you for your consideration.

Sincerely,

Arthur L. Caplan

Arthur L. Caplan, Ph.D.
Director, Center for Biomedical Ethics
Professor of Philosophy and,
Professor of Surgery

Enclosure

# PROGRAM APPROVAL CERTIFICATION

May 25, 1989
(Date)

Proposal for (name of program): Graduate Minor in Bioethics

Submitted by (department(s) name): Center for Biomedical Ethics

of the (college or campus name): University of Minnesota

**The Proposal has been reviewed and approved by:**

| APPROVAL CERTIFICATION | | ADDITIONAL APPROVALS (as appropriate) | |
|---|---|---|---|
| [signature] | 5/22/89 | [signature] Robert Holt | 5/25/89 |
| (Department Chair or Equivalent) | (Date) | (Dean, Graduate School) | (Date) |
| [signature] | 5/22/89 | | |
| (Dean) | (Date) | (Chancellor or Vice Chancellor for Academic Affairs or Administration) | (Date) |
| [signature] | 5/22/89 | | |
| (Dean, College of Liberal Arts) | | | |
| | | | |
| (Vice President, Academic Affairs) | (Date) | (Vice President, Health Sciences) | (Date) |
| | | | |
| | | (Vice President, IANRHE) | (Date) |

Approved by Board of Regents ____________ (Date)

First Reading by PAC (MHECB): ____________ (Date)

Second reading by PAC (MHECB): ____________ (Date)

Recommendation by MHECB: ____________ (Date)

Confirmation by Board of Regents: ____________ (Date)

UNIFORM PROGRAM INVENTORY
AND PROPOSAL FORM (UPIPF)

SECTION I

(To be completed by the institution(s); see attached instructions)

Name of Institution(s): 1) University of Minnesota, Twin Cities, Graduate School

2) ______

If more than one institution, indicate if it is:

____ joint program (two or more institutions grant the degree)

____ cooperative program (two or more institutions share the curriculum, but only one grants the degree)

1. Program Title (including degree, if applicable):

Graduate Minor in Bioethics for Doctoral and Master's Students.

Program Classification (check one): major___ minor x
concentration___ other___ ______ (specify)

[If applicant is a private institution, does it have approval to grant the appropriate degree under the Private Institutions Registration program:

Yes ____ No ____ In process ____]

2. Program Type: ____ Preservice ____ Occupational
____ In-service x General

3. Proposed Implementation Date: 9 / 89
mo. yr.

4. Program Length: Credit hours 20 Clock hours ____ doctoral students
12 master's students

5. Describe the Program (in 50 words or less):

The Graduate Minor in Bioethics offers doctoral and master's students a structured program of study in bioethics and the opportunity to receive formal recognition of their academic accomplishments in bioethics. Students will acquire skills in applying the tools of ethical, conceptual, and public policy analysis to problems raised by innovations in biomedicine.

UNIFORM PROGRAM INVENTORY
AND PROPOSAL FORM (UPIPF)

SECTION I

(To be completed by the institution(s); see attached instructions)

Name of Institution(s): 1) University of Minnesota, Twin Cities, Graduate School

2) ______

If more than one institution, indicate if it is:

____ joint program (two or more institutions grant the degree)

____ cooperative program (two or more institutions share the curriculum, but only one grants the degree)

1. Program Title (including degree, if applicable):

Graduate Minor in Bioethics for Doctoral and Master's Students

Program Classification (check one): major___ minor_x_ concentration___ other___ ______ (specify)

[If applicant is a private institution, does it have approval to grant the appropriate degree under the Private Institutions Registration program:

Yes ____ No ____ In process ____]

2. Program Type: ____ Preservice ____ In-service ____ Occupational _x_ General

3. Proposed Implementation Date: 9 / 89 (mo. / yr.)

4. Program Length: Credit hours 20 Clock hours ____ doctoral students
12 master's students

5. Describe the Program (in 50 words or less):

The Graduate Minor in Bioethics offers doctoral and master's students a structured program of study in bioethics and the opportunity to receive formal recognition of their academic accomplishments in bioethics. Students will acquire skills in applying the tools of ethical, conceptual, and public policy analysis to problems raised by innovations in biomedicine.

6. Expected student interest in the program during the first year of operation, and when the program reaches full operating level.

| | First Year (1989-90) Number Expected | First Year (1989-90) Hours Generated | Full Operation (1991-92) Number Expected | Full Operation (1991-92) Hours Generated |
|---|---|---|---|---|
| Program Enrollees | 10 | 1200 | 23 | 2,760 |
| Program Graduates | 2 | | 15 | |

7. Projected Costs of the Program:

| | First Year (1989-90) New FTE | New Cost | Reassigned FTE | Reassigned Cost | Full Operation (1991-92) New FTE | New Cost | Reassigned FTE | Reassigned Cost |
|---|---|---|---|---|---|---|---|---|
| a. Faculty | .07 | $ 0 | .07 | $ 3,000 | .07 | $0 | .07 | $ 3,308 |
| b. Civil Service | .05 | $ 0 | .05 | $ 875 | .05 | $0 | .05 | $ 965 |
| c. Equip, Supplies | | $ 0 | | $ 5,000 | | $0 | | $5,513 |
| d. Space Rental | | $ 0 | | $ 0 | | $ 0 | | $ 0 |
| e. Other | | $ 0 | | $ 0 | | $ 0 | | $ 0 |
| f. Total | | $ 0 | | $ 8,875 | | $ 0 | | $ 9,786 |

8. Expected Sources of Funds for Program:

| | First Year (1989-90) Dollar Amount | % of Annual Expend. | Full Operation (1991-92) Dollar Amount | % of Annual Expend. |
|---|---|---|---|---|
| a. State | $ 5,916 | .67 | $ 6,524 | .66 |
| b. Tuition | $ 2,958 | .33 | $ 3,262 | .33 |
| c. Federal | $ 0 | 0 | $ 0 | 0 |
| d. Private | $ 0 | 0 | $ 0 | 0 |
| e. Other ________ (specify) | $ 0 | 0 | $ 0 | 0 |
| f. Total | $ 8,875 | 1.00 | $ 9,786 | 1.00 |

9. Governing Board(s) Preliminary Approval Date(s):

Institution 1 ______________________________

Institution 2 ______________________________

10. System(s) Verification:

| ______________________ | ______________________ | __________ |
|---|---|---|
| Authorized Institution or System Signature | Title | Date |
| ______________________ | ______________________ | __________ |
| Authorized Institution or System Signature | Title | Date |

UNIFORM PROGRAM INVENTORY
AND PROPOSAL FORM (UPIPF)

SECTION II

To complete Section II, see attached instructions.

# GRADUATE MINOR IN BIOETHICS
# for Doctoral and Master's Students

## SECTION II

### Proposed Program's Compliance with HECB Guidelines

## 1. MISSION OF THE PROPOSING INSTITUTION

In 1984, a University-wide interdisciplinary task force, chaired by John Wallace, Assistant Vice-President for Academic Affairs and Shelley Chou, M.D., Chief of Neurosurgery, convened to consider whether the resources in bioethics at the University of Minnesota should be consolidated. The answer was a resounding "yes". The University's commitment to scholarship and education in bioethics was signaled by the formation of the Center for Biomedical Ethics in 1985. The Center was charged with engaging in education, research, and community service in bioethics.

Individual scholars working in many fields at the University of Minnesota have been addressing ethical issues in biomedicine, without a focused program being available to students. Graduate students with interest in bioethics have had to create their own programs of study, several have chosen to pursue a minor in philosophy. The Graduate Minor in Bioethics offers students a coherent plan of study, a community of students and faculty from a broad range of disciplines with shared academic interests, access to a host of resources difficult for students to locate on their own, and the opportunity to receive official recognition of their studies in this area.

A Graduate Minor in Bioethics is the natural response to the continuing effort to consolidate and enhance the human resources in bioethics at the University. Given the strength of the many graduate programs at the University likely to attract students with an interest in graduate work in bioethics, together with the strength of the Center, the proposed Graduate Minor in Bioethics can be expected to attract students of the highest caliber to the University. The prominence and visibility of the Center and cognate faculty in various departments and schools at the University in bioethics suggests that the proposed Minor will quickly join the ranks of the most prestigious programs of graduate study in bioethics. The increase in the research and educational activities in bioethics at the University of Minnesota is anticipated to have a significant ripple effect on the University community as well as members of the public.

## 2. EVIDENCE OF INSTITUTIONAL READINESS

There are enormous educational and research opportunities available in the field of bioethics at the University of Minnesota. More than 50 courses in bioethics and cognate areas are currently offered within the University. Strong relationships have been formed between the Center and the Departments of American Studies, Economics, Health Services Research and Policy, History of Medicine and Biological Sciences, Philosophy, Sociology, the Schools of Agriculture, Dentistry, Law, Medicine, Nursing, Public Affairs, Public Health, Pharmacy, and Social Work, which permits a wide range of research and educational opportunities. The plans and structure for the Graduate Minor in Bioethics were reviewed by approximately 25 interested faculty members, Dean Kenneth Zimmerman, the Department of Philosophy, as well as graduate students in philosophy and nursing.

The library resources are sufficient, due in large measure to the long term interest and attention of the directors of the University's biomedical library. The University of Minnesota applied for a federal grant to become the national resource library in bioethics.

Currently there is no system of accreditation of graduate programs in bioethics.

## 3. COST OF THE PROGRAM

No additional University funds are required at this time to support the Graduate Minor in Bioethics. The reassigned costs of the Minor in the first year are estimated to be $8,875. The initial Director of Graduate Studies requires neither release-time nor a stipend. The three required courses and the electives will be taught by faculty members as part of their regular teaching load. The costs of support staff will be covered by the budget of the Center for Biomedical Ethics, which is supported by University funds. Two-thirds of the program costs will be funded by the state, one-third of the funds will come from tuition.

## 4. IDENTIFICATION OF THE GEOGRAPHIC AREA THE PROGRAM IS DESIGNED TO SERVE

The Graduate Minor in Bioethics will attract students to the University of Minnesota's graduate programs from within the state as well as from around the country.

The employment prospects for graduates of the proposed minor in bioethics are encouraging. Those minoring in bioethics have a number of academic as well as nonacademic career opportunities. For example, graduates may teach at the undergraduate, graduate, and professional school levels, serve as ethicist-in-residence for a health care institution or chain of institutions, direct an ethics committee, institutional review board, animal care committee, or the like, and work in public policy or health policy at the local, state, and federal levels.

## 5. JUSTIFICATION FOR IMPLEMENTATION OF THE PROGRAM

### a. Need

There has been strong interest in the study of bioethics among students enrolled at the University of Minnesota. One student recently received an M.D. and a Ph.D. in philosophy. Another student is currently pursuing a similar joint M.D., Ph.D. program in philosophy. At least two students in the doctoral program in nursing are engaged in graduate work in the area of philosophy and health care. Fourteen graduate students enrolled in Philosophy 8320, an advanced seminar in bioethics, Spring Quarter, 1988. The students represented a large number of fields including medicine, philosophy, public health, economics, journalism, and nursing. An additional seven students audited the course. Their graduate and professional affiliations were equally diverse. Many of these students have indicated an interest in pursuing a minor in the field of bioethics. Some would do so at the Master's level, others at the Ph.D. level.

The Center for Biomedical Ethics receives inquiries every week from students and professionals within the United States as well as from other countries interested in pursuing graduate study in the area. Over the past year staff at the Center have answered roughly 20 written inquiries and met personally with approximately another 20 students interested in the graduate study of bioethics at the University of Minnesota.

The Department of Philosophy reports a sharp increase in the number of applicants to their graduate program indicating an interest in the field of bioethics. They report having close to 20 applicants whose interest in attending the University of Minnesota is related to the opportunities to study bioethics.

### b. Duplication with Other Programs and Non-formal Educational Sectors

No comparable program for graduate studies in bioethics exists in Minnesota.

At present, graduate opportunities for study in bioethics are somewhat limited. The most notable programs that do exist include graduate programs in bioethics at Georgetown University and the University of Tennessee. These schools offer degrees at the M.A. and Ph.D. levels in Philosophy with a concentration in bioethics. The Department of Philosophy at Loyola University of Chicago offers a master's degree in Health Care Ethics. Bowling Green State University offers graduate degrees in Applied Ethics. The University of Pittsburgh offers a master's degree in Medical Ethics.

In addition to these specialized programs, minors in bioethics have been developed at Brown University, the University of Chicago, and the University of Texas. An additional minor is under development at the University of Virginia.

A relatively unique feature of the free-standing Graduate Minor in Bioethics at the University of Minnesota is that it would not be restricted to philosophy students, but would be open to students in any degree granting program of the graduate school.

### c. Utilization and Capacity of Existing Programs

The size of programs in bioethics at other institutions tend to be modest. Generally less than 10 students are admitted per year to any of the programs mentioned above. Existing resources would permit 15 students to enroll in the Minor at the University of Minnesota per year. The ratio of core faculty members for the Minor to students permitted to enroll in the Minor per year is expected to be approximately 1:1. A ratio of 1:1 is considered optimum.

### d. Placement Data for Graduates of Similar Programs

There is limited data available on the placement rates of students completing graduate programs in bioethics. The oldest and largest program, the program at the Kennedy Institute of Ethics at Georgetown University, reports an excellent placement rate.

We anticipate that the Graduate Minor in Bioethics will be an asset to students seeking employment in their major field. Those who seek employment in the field of bioethics per se can anticipate a steady stream of opportunities in academia, health care institutions, and federal, state, or local government. The field of bioethics can be expected to enjoy continued expansion and growth; qualified scholars who develop expertise in this area can expect to enjoy careers that will engage their interest and allow them to apply their expertise.

### e. For Programs Not Offered in Minnesota, an Assessment of How Education and Training Needs are Currently Being Served

Currently graduate students at the University of Minnesota interested in bioethics have to create their own programs of study. Several such students from fields other than philosophy have elected to minor in philosophy in recent years. The core courses in bioethics, which have not always been offered on a regular basis, will be offered annually when the Minor is instituted. It is often more difficult for students interested in bioethics whose major field is philosophy to identify a graduate minor to enroll in that sufficiently furthers their study of bioethics.

Bioethics is at the forefront of a growing recognition on the part of educators, researchers, and students of the need for increased attention to questions of value. Programs in applied ethics, e.g., medical ethics, business ethics, dental ethics, journalism ethics, environmental ethics, and so forth, are on the rise. The increased complexity of our social institutions and the constant need to weigh the competing rights and concerns of individuals against one another, as well as against society's interest in such things as scientific progress, efficiency, cost containment, and the public health are important reasons for expanding the opportunities for interdisciplinary study of the humanities and the biological sciences.

# GRADUATE MINOR IN BIOETHICS
## for Doctoral and Master's Students

### SECTION III

### Proposal Submitted to The Graduate School
### University of Minnesota

## A. INTRODUCTION

Advances in biomedicine and changes in health policy continuously challenge us with new value conflicts and conceptual difficulties. The growing complexity of biomedical technologies and medical knowledge such as: the ability to detect genetic disease *in utero*; to perform surgery on fetuses *in utero*; to perform *in vitro* fertilization and embryo transfers; to perform organ and limb transplantation; as well as changes in our understanding of the causes of ill health, such as new understandings of the relationship between life-style and health; and changes in the structure, financing, and delivery of health care are examples of developments that are accompanied by ethical and philosophical problems. Individuals with training in bioethics apply the tools of ethical, conceptual, and public policy analysis to the conflicts and problems raised by innovations in biomedical technology and policy. Bioethics is interdisciplinary in character insofar as it includes such disciplines as the health sciences, the basic sciences, philosophy, law, the social and behavioral sciences, economics, theology, and so forth.

At the University of Minnesota, individual scholars in many fields have been addressing ethical issues in biomedicine, but a more focused program is needed to prepare students to deal effectively with them. For years, students in the Health Sciences have been requesting formal coursework in bioethics. They have administered programs in biomedical ethics on their own since the mid-1970's.

In 1984, a University-wide interdisciplinary task force, chaired by John Wallace, Assistant Vice-President for Academic Affairs and Shelley Chou, M.D., Chief of Neurosurgery, convened to consider whether the resources in bioethics at the University of Minnesota should be consolidated. The answer was a resounding "yes". The work of the task force resulted in a grant from the Northwest Area Foundation to create the Center for Biomedical Ethics at the University in 1985.

The Center for Biomedical Ethics began under the directorship of Paul Quie, M.D. In June of 1987, Arthur L. Caplan became Director. The Center currently has a professional staff of four: two philosophers; an attorney; and a nurse. The Center's charge includes education, research, and community service.

The Center's director reports to a Dean's Policy Council with representation by the College of Liberal Arts, Education and Home Economics, the Hubert H. Humphrey Institute for Public Affairs, the Law School, and all of the units of the Health Sciences. In addition, the Center has a Community Advisory Council, a Committee on Education, and a Committee on Research and Publication. These committees include 25 faculty members from throughout the University.

In an effort to foster an intellectual community among faculty interested in bioethics at the University, the Center sponsors a monthly faculty luncheon seminar. Moreover, the Center is currently undertaking two major interdisciplinary research projects in bioethics that directly involve at least 23 members of the University's faculty: "The Use of Human Fetal Tissue in Research and Transplantation" and "A New Ethics for a Changing Health Care Environment." The high level of interest and involvement of faculty members from throughout the University make the Center a focal point for interdisciplinary activities in research and education in bioethics.

A Graduate Minor in Bioethics is the natural response to the continuing effort to consolidate fiscal and human resources at the University. Despite the many courses relevant to the study of bioethics at the University, there is no designated concentration in this area of study. Until now graduate students have been developing programs of study on their own, frequently pursuing a Minor in Philosophy. With the approval of the Graduate Minor in Bioethics, students may select relevant courses offered by a wide variety of departments within the University and receive formal recognition for their academic accomplishments in bioethics.

Center staff receive requests each week from students and professionals who wish to develop competency in bioethics. To address the needs of professionals, the Center has instituted a visiting scholars program. This year the Center has accepted six visiting scholars and expects to have at least one on campus at all times. After review of current course offerings in bioethics and cognate areas at the University, the Center for Biomedical Ethics suggests a formal program of study that would constitute a Graduate Minor in Bioethics to address the needs of graduate students. The plans and structure for the Graduate Minor in Bioethics have been reviewed by approximately 25 interested faculty members, Dean Kenneth Zimmerman, the Department of Philosophy, as well as graduate students in philosophy and nursing.

## B. THE PROPOSED PROGRAM

### Objectives

To establish a formal, structured course of study for students admitted by the Graduate School to a degree-granting program who wish to develop competency in bioethics at the University of Minnesota, Twin Cities.

To offer graduate students the opportunity to receive formal recognition for their academic accomplishments in bioethics.

To support the development of a breadth of graduate courses in bioethics and cognate areas.

To foster collaboration among the faculty who teach and conduct research in bioethics and cognate areas.

### Intent To Enroll In The Graduate Minor In Bioethics

Graduate students accepted by the Graduate School at the University of Minnesota into a degree-granting department who are interested in pursuing a Minor in Bioethics must file an "Intent to Enroll in the Graduate Minor in Bioethics" with the Director of Graduate Studies in Bioethics. (See Appendix A.) Prior to filing an "Intent to Enroll," students are expected to obtain some relevant experience in philosophy and biomedicine and some familiarity with the field of bioethics. Moreover, graduate students in philosophy are expected to have successfully completed at least one graduate course in ethical theory. Students are asked to provide the Director of Graduate Studies in Bioethics with information regarding relevant educational background and experience, a brief statement outlining educational objectives, and a proposed program of study. Enrollment in the Minor is contingent upon approval by the Director of Graduate Studies in Bioethics.

Students are encouraged to submit their "Intent to Enroll" by the end of Winter Quarter, later submissions will be considered as space permits. We anticipate a heavy demand for the Minor in Bioethics. Based on current faculty resources, we anticipate being able to accommodate 15 students per year. Although some priority is given to doctoral students, students with basic familiarity with philosophy and biomedicine, and bioethics in particular, will be admitted to the Minor on a first come, first served basis.

The objective of requiring students to file an "Intent to Enroll in the Graduate Minor in Bioethics" is to enhance the quality of the student's academic experience.
- It establishes early and sustained contact between the student and an informal advisor appointed by the Director of Graduate Studies in Bioethics. Students will be invited to participate in as many of the educational and research activities of the Center for Biomedical Ethics as time and interest permit.
- Filing the "Intent to Minor" encourages early prospective planning of coursework. Advanced program planning is essential since students must take a required course in ethical theory prior to the required courses in bioethics. The electives must be taken last.
- It allows the Center for Biomedical Ethics and the Department of Philosophy to use resources efficiently by keeping the annual offering of required courses to a minimum. Offering the required sequence of courses for the Minor once each year has benefits for students as well. Students who start their work on the Minor at the same time as other students from a variety of disciplines will have increased opportunities for interdisciplinary experiences and a greater sense of intellectual community.

The application process is not meant to be competitive, but to establish that students have sufficient preliminary exposure to philosophy and biomedicine as well as commitment to graduate work in bioethics that the rewards of participating in the Minor can be maximized.

Further information and application forms are available from:

Director of Graduate Studies in Bioethics
Center for Biomedical Ethics
3-110 Owre/UMHC Box 33
Harvard St. at East River Road
Minneapolis, Minnesota 55455
(612) 625-4917

## Curriculum

Graduate students may pursue a Minor in Bioethics at either the Master's or the doctoral level.

The requirements for students whose major field is philosophy differ from the requirements for students whose major field is other than philosophy to make up for differences in formal training in philosophy, the focal discipline for the study of bioethics.

I. Students Whose Major Field Is Other Than Philosophy

Master's students whose major field is other than philosophy must complete a minimum of 12 graduate credits in bioethics offered outside the student's major field.

Doctoral students whose major field is other than philosophy must complete a minimum of 20 graduate credits in bioethics offered outside the student's major field.

Doctoral and master's students must take three required courses. Students are required to first take at least one course in ethical theory (out of a choice of six). Then students are required to take a 5000 level course and an 8000 level course in bioethics. (See Appendix B for course descriptions.)

Master's students are not required to take electives in bioethics and cognate areas, however, they are encouraged to do so.

Doctoral students, upon completion of the three required courses, must select at least eight (8) credits of electives outside their major department from the Guide to Elective Courses in Bioethics and Cognate Areas in consultation with the Directors of Graduate Studies in Bioethics and the student's major field. (See Appendix C.) Most of the electives fall under one of three major areas: History and Philosophy of Medicine; Health Law and Public Policy; and Health Care Economics. Other areas include: Professional Ethics; Medical Humanities; and Moral Development. The Center for Biomedical Ethics intends to develop an elective in clinical ethics designed for students who seek exposure to the clinical setting and clinical decisionmaking.

Exceptions to the requirements, such as exceptions to the required sequencing of coursework, or permission to substitute electives in bioethics for the required courses when a student has previously completed comparable coursework, must be approved by the Director of Graduate Studies in Bioethics.

REQUIREMENTS FOR STUDENTS WHOSE MAJOR FIELD IS OTHER THAN PHILOSOPHY .

ETHICAL THEORY (Choose at least one of the following)

| | | | |
|---|---|---|---|
| Phil 5301 | (4cr) | History of Ethics: British Moralists | |
| Phil 5302 | (4cr) | History of Ethics: Selected Classical Moralists | |
| Phil 5311 | (4cr) | Ethical Theory | |
| Phil 5312 | (4cr) | Foundations of Ethics | |
| Phil 5321 | (4cr) | Theories of Justice | |
| Phil 8310 | (4cr) | Seminar: Moral Philosophy | |
| | | | 4 cr |

BIOETHICS

| | | | |
|---|---|---|---|
| BioE 5XXX* | (4cr) | Ethical Issues in Biomedicine | |
| BioE 8XXX* | (4cr) | Seminar: Bioethics | |
| | | | 8 cr |
| | | | **12 cr M.A.** |

ELECTIVES

(Choose from the Guide to Elective Courses in Bioethics) 8 cr

**20 cr Ph.D.**

*The Department of Philosophy has occasionally offered 5000 and 8000 level courses in bioethics. The Center for Biomedical Ethics plans to obtain Bioethics course designators and approval for a 5000 and an 8000 level course in bioethics to be offered on an annual basis.

II. Students Whose Major Field Is Philosophy

Master's students in Philosophy must complete a minimum of 12 graduate credits in bioethics offered outside the Department of Philosophy.

Doctoral students in philosophy must complete a minimum of 20 graduate credits in bioethics offered outside the Department of Philosophy.

Philosophy students are expected to have successfully completed at least one course in ethical theory prior to undertaking coursework in the bioethics minor. Philosophy students enrolled in the Minor must take two required courses in bioethics, first "Ethical Issues in Biomedicine" and then "Seminar: Bioethics." (See Appendix B for course descriptions.)

After completing the required courses, master's students will select at least four credits of electives outside the Department of Philosophy and doctoral students will select at least 12 credits of electives outside the Department of Philosophy from the Guide to Elective Courses in Bioethics and Cognate Areas in consultation with the Directors of Graduate Studies in Bioethics and the Department of Philosophy. (See Appendix C.) Most of the electives fall under one of three major areas: History and Philosophy of Medicine; Health Law and Public Policy; and Health Care Economics. Other areas include: Professional Ethics; Medical Humanities; and Moral Development. The Center for Biomedical Ethics intends to develop an elective in clinical ethics designed for students who seek exposure to the clinical setting and clinical decisionmaking.

Exceptions to the requirements, such as exceptions to the required sequencing of coursework, or permission to substitute electives in bioethics for the required courses when a student has previously completed comparable coursework, must be approved by the Director of Graduate Studies in Bioethics.

Requirements for Students Whose Major Field is Philosophy

BIOETHICS

| | | | |
|---|---|---|---|
| BioE 5XXX* | (4cr) | Ethical Issues in Biomedicine | |
| BioE 8XXX* | (4cr) | Seminar: Bioethics | |
| | | | 8 cr |

ELECTIVES

| | |
|---|---|
| (Choose from the Guide to Elective Courses in Bioethics) | 4 cr |
| | **12 cr M.A.** |
| *or* | |
| | 12 cr |
| | **20 cr Ph.D.** |

*The Department of Philosophy has occasionally offered 5000 and 8000 level courses in bioethics. The Center for Biomedical Ethics plans to obtain Bioethics course designators and approval for a 5000 and an 8000 level course in bioethics to be offered on an annual basis.

## Graduation

Students satisfying the minimum standards of the Graduate School will receive the Graduate Minor in Bioethics.

## C. EDUCATIONAL AND SOCIAL NEED FOR THE PROGRAM

Rapid advances in the development of new technologies in health care in combination with shifts in the organization, structure, and financing of health care are raising a host of ethical and policy questions for our society. The proposed program will prepare students at the University of Minnesota to confront these challenges in constructive ways.

There has been strong interest in the study of bioethics among students enrolled at the University of Minnesota. One student recently received a M.D. and a Ph.D. in philosophy. Another student is currently pursuing a similar joint M.D., Ph.D. program in philosophy. At least two students in the doctoral program in nursing are engaged in graduate work in the area of philosophy and health care.

Fourteen graduate students enrolled in Philosophy 8320, an advanced seminar in bioethics, Spring Quarter, 1988. The students represented a large number of fields including medicine, philosophy, public health, economics, journalism, and nursing. An additional seven students audited the course. Their graduate and professional affiliations were equally diverse. Many of these students have indicated an interest in pursuing a minor in the field of bioethics. Some would do so at the Master's level, others at the Ph.D. level.

The Center for Biomedical Ethics receives inquiries every week from students and professionals within the United States as well as from other countries interested in pursuing graduate study in the area. Over the past year staff at the Center have answered roughly 20 written inquiries and met personally with approximately 20 students interested in the graduate study of bioethics at the University of Minnesota.

At present, graduate opportunities for study in bioethics are somewhat limited. The most notable programs that do exist include graduate programs in bioethics at Georgetown University and the University of Tennessee. These schools offer degrees at the M.A. and Ph.D. levels in Philosophy with a concentration in bioethics. Loyola University of Chicago offers a master's degree in Health Care Ethics. Bowling Green State University offers graduate degrees in Applied Ethics. The University of Pittsburgh offers a master's degree in Medical Ethics.

In addition to these specialized programs, minors in bioethics have been developed at Brown University, the University of Chicago, and the University of Texas. An additional minor is under development at the University of Virginia.

The employment prospects for graduates of the proposed minor in bioethics are encouraging. Those minoring in bioethics have a number of academic as well as nonacademic career opportunities. For example, graduates may teach at the undergraduate, graduate, and professional school levels, serve as ethicist-in-residence for a health care institution or chain of institutions, direct an ethics committee, institutional review board, animal care committee, or the like, and work in public policy or health policy at the local, state, and federal levels.

The field of bioethics is likely to enjoy continued expansion and growth in the years to come if qualified scholars can be encouraged to enter the field and to develop expertise which they can apply in the course of their careers.

There are enormous educational and research opportunities available in the field of bioethics at the University of Minnesota. The University has committed itself to the field through the formation of the Center for Biomedical Ethics. In addition, strong relationships have been formed between the Center and the Departments of American Studies, Economics, Health Services Research and Policy, History of Medicine and Biological Sciences, Philosophy, Sociology, the Schools of Agriculture, Dentistry, Law, Medicine, Nursing, Public Affairs, Public Health, Pharmacy, and Social Work, which permits a wide range of research and educational opportunities.

Given the strength of the many graduate programs at the University likely to attract students with an interest in graduate work in bioethics, together with the strength of the Center, there is no doubt that the proposed Graduate Minor in Bioethics would attract students of the highest caliber to the University. The prominence and visibility of the Center and cognate faculty in various departments and schools at the University in bioethics guarantees that the proposed program would quickly join the ranks of the most prestigious programs of graduate study in bioethics. The social and cultural benefits to the State of Minnesota from having a high quality program would be immediate and readily apparent both within the University and to the citizens of the State.

## D. COMPARISON WITH SIMILAR PROGRAMS

No comparable program for graduate studies in bioethics exists in Minnesota.

## E. QUALITY CONTROL

### Director of Graduate Studies in Bioethics

It is proposed that Arthur L. Caplan, Director of the Center for Biomedical Ethics, serve as the Director of Graduate Studies for the first three years. Every three years, the core faculty of the Minor in Bioethics will select a member of the group to serve as Director of Graduate Studies in Bioethics.

### Class size

Class size will be limited to no more than 15 students in the 8000 level required seminar in bioethics. Priority will be given to students who have been admitted to the Graduate Minor in Bioethics and who have successfully completed the prerequisites.

### Faculty

Faculty may qualify to be members of the core faculty of the Graduate Minor in Bioethics if they have a commitment to graduate education or research in bioethics or cognate areas. Faculty who teach a required course, or a course that qualifies as an elective course for the Minor at least every three years, who conduct research and publish in the field of bioethics or a cognate area, who agree to serve as informal advisors to students enrolled in the Minor, and who routinely participate in the Center's faculty luncheon series, meet the requirements of membership in the core faculty.

The proposed initial group of core faculty for the Minor in Bioethics consists of the following faculty members. (See Appendix D.)

Mila A. Aroskar, Ed.D., Associate Professor of Health Services Administration, School of Public Health, Associate Member, Graduate School.

Dianne M. Bartels, R.N., M.A., Associate Director, Center for Biomedical Ethics.*

Arthur L. Caplan, Ph.D., Director, Center for Biomedical Ethics, Professor of Philosophy, and Professor of Surgery.

Patricia Crisham, R.N., Ph.D., Associate Professor, Graduate Program in Nursing.

Norman Dahl, Ph.D., Professor of Philosophy.

John M. Dolan, Ph.D., Associate Professor of Philosophy and American Studies.

John Eyler, Ph.D., Professor of History of Medicine and Biological Sciences.

Jasper Hopkins, Ph.D., Professor of Philosophy.

H.E. Mason, Ph.D., Professor of Philosophy.

Kathleen Price, J.D., Professor of Law and Director of Law Library.

Reinhard Priester, J.D., Research Fellow, Center for Biomedical Ethics.*

Michael Root, Ph.D., Associate Professor of Philosophy.

Naomi Scheman, Ph.D., Associate Professor of Philosophy, Shared faculty and Chair, Women's Studies Department.

Dorothy E. Vawter, Ph.D., Research Associate, Center for Biomedical Ethics.*

* Core faculty currently without graduate faculty appointments.

**Review of the Minor**

Upon completion of the Graduate Minor in Bioethics, students will complete a written evaluation of the program. Students will be asked to critique the program's requirements, the quality of the required and elective courses, and the advisor system. Students are encouraged to schedule an exit interview with the Director of Graduate Studies in Bioethics.

Faculty members teaching required courses as well as electives in bioethics will be asked to assess the strengths and weaknesses of the Graduate Minor in Bioethics, at the end of year one, and every other year, thereafter. Faculty will assist the Director of Graduate Studies with updating the Guide to Elective Courses in Bioethics and Cognate Areas annually.

The Education Committee will undertake an evaluation of the Graduate Minor in Bioethics at the end of year one, and every other year, thereafter. (The Education Committee has 16 members, 6 of the members are on the proposed initial list of core faculty for the Graduate Minor in Bioethics.)

## F. IMPLEMENTATION

Upon final approval by the Regents, the Center for Biomedical Ethics will obtain its own course designators and list required courses for the Minor in Bioethics under the BioE designator. The Center will seek approval for an elective in clinical ethics. Students who are admitted to the Minor and who successfully complete the requirements will receive official recognition on their University transcript of completion the Graduate Minor in Bioethics.

It is anticipated that the Graduate Minor in Bioethics will be available to students Fall Quarter, 1989.

### Cost and Benefit

No additional University funds are required at this time to support the Graduate Minor in Bioethics. The proposed initial Director of Graduate Studies requires neither release-time nor a stipend. The courses will be taught by faculty members as part of their regular teaching load. Additional costs, such as those associated with the support staff will be covered by the budget of the Center for Biomedical Ethics.

The benefits to the students and faculty involved with the Graduate Minor in Bioethics are expected to be substantial. The Graduate Minor in Bioethics offers students a coherent plan of study, a community of students and faculty from a broad range of disciplines with shared academic interests, and access to a host of resources difficult for students to locate on their own. The University may expect an increase in interdisciplinary teaching and research, and a richer intellectual community. Moreover, the Graduate Minor in Bioethics will attract high quality students to the graduate programs at the University of Minnesota. Other members of the University community and the public can expect to experience a ripple effect of the increase in educational and research activities in the field of bioethics.

Appendix A

## Intent to Enroll in Graduate Minor in Bioethics

Date_____________

Name___________________________Telephone number______________

Address ______________________________________________________

______________________________________________________

Major Field ____________________________________________________
Degree Sought ______Master's _____Ph.D.
Advisor's name____________________Telephone number ____________
Address ______________________________________________________

______________________________________________________

Educational Background (Please indicate degrees received, major areas of study, coursework in ethical theory, bioethics, and relevant interdisciplinary studies.)

Other Relevant Experience

Statement of Purpose (Please indicate areas of interest in bioethics and career objectives. Continue on separate page, if necessary.)

Proposed Plan of Study for Minor in Bioethics

| Courses | Quarter | Year | Credits |
| --- | --- | --- | --- |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Please include a copy of your notification of admission to the Graduate School and a degree-granting department as well as copies of relevant transcripts.

Deadline: End of Winter Quarter. Applications received after this time will be considered on a space available basis.

Mail to: Director of Graduate Studies
Center for Biomedical Ethics
3-110 Owre Hall/UMHC Box 33
Harvard St. at E. River Road
Minneapolis, MN 55455

Appendix B

# GRADUATE MINOR IN BIOETHICS

## Descriptions of Required Courses

ETHICAL THEORY (Students whose major field is other than philosophy must choose one)

Phil 5301 History of Ethics: British Moralists
(4 cr; prereq 1003 or #) Terrell
Ethical theory in Great Britain from 17th through 19th centuries.

Phil 5302 History of Ethics: Selected Classical Moralists
(4 cr; prereq 1003 or #) Dahl, Peterson
Moral philosophy outside of British tradition. Specific topics announced in the *Class Schedule*.

Phil 5311 Ethical Theory
(4 cr; prereq 1003 or #) Dahl, Mason
Investigation of representative theories on the nature and justification of moral judgments.

Phil 5312 Foundations of Ethics
(4 cr; prereq 1003 or #) Dahl, Mason, Scheman
Discussion of the view that evaluative judgments cannot be based on factual considerations alone, and the relation of this view to the objectivity of ethics.

Phil 5321 Theories of Justice
(4 cr; prereq 1003 or 1004 or 5311 or #) Mason
Philosophical accounts of the concept and principles of justice.

Phil 8310 Seminar: Moral Philosophy
(4 cr per qtr [may be repeated for cr] prereq 5311 or #) Staff
Systematic study of concepts and problems relating to ethical discourse.

BIOETHICS

BioE 5XXX Ethical Issues in Biomedicine
(4 cr; prereq 5000 level course in ethical theory and #)
Staff

After an examination of key moral principles and concepts in bioethics, will examine a variety of issues arising at both the clinical and policy levels of biomedicine.

BioE 8XXX Seminar: Bioethics
(4 cr; prereq BioE 5XXX and #) Caplan, Staff

In-depth study of one area of bioethics, for example, informed consent, human experimentation, allocation of scarce resources, organ transplantation, and genetic disease and therapy.

4/10/89

Appendix C

# GRADUATE MINOR IN BIOETHICS

## Guide to Elective Courses in Bioethics and Cognate Areas

University of Minnesota, Twin Cities

Symbols

+ Credit will not be granted if the equivalent course listed after this symbol has been taken for credit.

# Registration Override Permit, completed and signed by the instructor, is required for registration.

** Registration Override Permit, completed and signed by an officer of the unit offering the course, is required for registration.

### AMERICAN STUDIES

AmSt 5151 Religious Ethics in America
(4 cr) Delattre
The class will study a representative range of contributions to religious ethics in America. Attention will be given to the historical background of major approaches and traditions among Americans. But primary attention will focus week by week on how different ways of doing religious ethics address contemporary issues, including: peace and war, church and state, resource allocation, life and death, appropriate medical care, gender, race, and age.

### ANTHROPOLOGY

Anth 5185 Medical Anthropology
(4 cr) Etkin
Human health and disease from biological and behavioral perspectives. Origins of human disease, relationship to lifestyles. Comparisons of health beliefs and medical care in Western and non-Western societies.

Anth 5187 Folk Medical Systems: Cross Cultural Studies
(4 cr) Etkin
Concepts of disease and treatment of the ill in tribal and folk societies around the world.

BIOETHICS

BioE 5XXX Directed Studies
(1-4 cr; prereq #) Staff

BioE 8XXX Clinical Ethics
(1-4 cr; prereq 5000-level course in ethical theory and bioethics and #) Staff

Introduces students to hospitals and clinics. Rotations arranged with clinical, social and/or administrative services.

ECONOMICS

Econ 5021 Economics, Ethics, and Economic Philosophy
(3-5 cr; prereq 1001, 1002 or equiv) Smith

Literature and the issues it raises; relation of ethics to economic organization, practice, and policy. Different economic philosophies; elements involved in formulation of an economic philosophy.

Econ 5831 Cost-Benefit Analysis
(4 cr; prereq 3101, 3103) Ferrall

Principles for evaluation of benefits and costs of public projects or programs. Issues connected with definition and measurement of benefits and costs. Rate of return and rate of discount. Market imperfections, risk and uncertainty.

Econ 8682 Health Economics
(3 cr; + PubH 8761) Feldman

Behavioral models of hospitals; the supplier-induced demand controversy; cost-benefit analysis; human capital, health, and labor market behavior; and new developments in the health insurance markets.

EDUCATIONAL PSYCHOLOGY

EPsy 8131 Development of Moral-Political Judgment and Programs in Value Education
(2-4 cr; +PsyF 8565; prereq #; concurrent regis in 8149 recommended)

Consideration of research and theory in moral judgment and political socialization, with emphasis on cognitive-developmental approach; consideration of value education programs.

ENGLISH

Engl 5910 Humanistic Case Studies in Health Care [Topics in English and American Literature]
(4 cr; +HSU 5209; +SAHP 5305) Galle

An exploration of health care issues through their embodiment in selected modern plays and novels. Discussion will focus on the full human context in which health care decisions are made. Themes to be investigated include terminal care, the practitioner-patient relationship, the elderly patient, mental health and madness, and the politics of health care institutions.

## HISTORY OF MEDICINE AND BIOLOGICAL SCIENCES

HMed 5002 Public Health Issues in Historical Perspective
(4 cr; +PubH 5002) Eyler

Introduction to the evolution of major recurring problems and issues in public health including environment and health, food customs and nutrition, control of alcohol and drugs, venereal diseases and public policy, human resources regulation, and relationship of science to promotion of health.

HMed 5045 Medical Profession in America
(4 cr; +Hist 5045) Eyler

Historical analysis of the American medical profession in the 19th and 20th centuries; role of institutions, influence of social and moral values, and consequences of specialization and scientific innovation.

HMed 5120-5130 Historical Topics: Medicine and the Modern State
(4 cr per qtr) Eyler

Professionalism and reform: A comparative study of the British and American medical experience, 1880-1940.

HMed 5401 Medicine During the Scientific Revolution 1650-1850
(4 cr) Wilson Offered alternate years

Thomas Sydenham and the concept of distinct diseases, new chemical and mechanical theories of medicine, rise of medical teaching, pathological anatomy and definition of new diseases, impact of chemistry and physics on medicine in early 19th century, cell theory, discovery of anaesthesia.

HMed 5402 Medicine Since 1850
(4 cr) Wilson Offered alternate years

Controversy over spontaneous generation and germ theory of disease, development of antiseptic surgery, the public health movement, revolution in basic medical sciences, reform of medical education and growth of medical specialties, changing relationship of medicine to society.

HMed 5410-12 Seminar: Emergence of Modern Medicine, 1750-1900
(3 cr per qtr) Wilson

## HISTORY OF SCIENCE AND TECHNOLOGY

HSci 5201, 5202 History of Biology
(4 cr per qtr; +3201, +3202) Beatty

Scientific, philosophical, and social factors in development of biology; changing styles of biological reasoning and changing relationships between biological and physical sciences. 5201: Biology from antiquity through early modern period. 5202: Biology in 19th and 20th centuries.

## LAW

Law 5242 Biomedical Issues
(3 cr) Price

The significant medical and legal doctrines that have an impact on the practice of medicine and the conduct of medical research; distinctions between legal and ethical issues presented by clinical situations.

Law 5604 Family Law
(3 cr) Younger

Nature and conception of marriage, alternative forms of reproduction, surrogacy, divorce and custody.

Law 5605 Law and Medicine
(2 cr) Landsman

Problems of proof of medical facts in legal proceedings; the legal aspects of medical practice; guest lectures by medical personnel in specific areas of medicine of most significance in personal injury and workers' compensation practice.

Law 5615 Jurisprudence
(2 cr)

Introduction to problems of law and morality, punishment, social justice, legal and moral responsibility, limitations on individual freedom. Emphasis on readings from modern authors.

## NURSING

Nurs 8011 Moral and Ethical Positions in Nursing
(3 cr; prereq**) Crisham

Influence of moral and ethical positions on behavior and decision making in nursing. Emphasis on bases for positions taken, such as selected moral and ethical theory, rights and responsibilities, and conflict.

Nurs 8111 Moral and Ethical Development in Nursing Science
(4 cr; prereq 8011 or equiv,**) Crisham

Interaction between research and theory in moral judgment and behavior, applied ethics and nursing

PHILOSOPHY

Phil 5301 History of Ethics: British Moralists
(4 cr; prereq 1003 or #) Terrell
Ethical theory in Great Britain from 17th through 19th centuries.

Phil 5302 History of Ethics: Selected Classical Moralists
(4 cr; prereq 1003 or #) Dahl, Peterson
Moral philosophy outside of British tradition. Specific topics announced in the *Class Schedule*.

Phil 5311 Ethical Theory
(4 cr; prereq 1003 or #) Dahl, Mason
Investigation of representative theories on the nature and justification of moral judgments.

Phil 5312 Foundations of Ethics
(4 cr; prereq 1003 or #) Dahl, Mason, Scheman
Discussion of the view that evaluative judgments cannot be based on factual considerations alone, and the relation of this view to the objectivity of ethics.

Phil 5321 Theories of Justice
(4 cr; prereq 1003 or 1004 or 5311 or #) Mason
Philosophical accounts of the concept and principles of justice.

Phil 5415 Philosophy of Law
(4 cr; prereq #; offered when feasible)
Analytical accounts of law and legal obligation.

Phil 5602 Philosophy of Science: Theories and Explanation
(4 cr; prereq 3601 or 5601 or #) Giere, Savage
Major contemporary views about structure of scientific theories and nature of scientific explanation.

Phil 5606 Philosophy of Science: Problems of the Biological Sciences
(4 cr; prereq course in philosophy of science or biology) Giere
Major philosophical questions that arise in connection with biology: structure and status of evolutionary theory, reductionism in biology, legitimacy of teleology, nature of species, relation of biology to social sciences.

Phil 5613 Relativism
(4 cr; prereq 1002 or #) Mason, Root, Scheman
Attempts of philosophers, social scientists, and students of literature to understand aspects of human life and discourse by appealing to alleged relativities of concepts and institutions to culture, language, world view, or conceptual scheme.

Phil 8310 Seminar: Moral Philosophy
(4 cr per qtr [may be repeated for cr] prereq 5311 or #) Staff
Systematic study of concepts and problems relating to ethical discourse.

Phil 8620 Philosophy of Medicine
(4 cr; +BioE 8XXX; prereq 5760 and #) Caplan offered alternate yrs

This seminar will examine key philosophical questions raised by the evolution of theories in the medical and biomedical sciences. The structure of theories and nature of research strategies in the biomedical sciences will be discussed. Key concepts such as 'health,' 'disease,' 'disability,' 'research,' and 'experimentation' will be examined. Close attention will also be paid to the ways in which theories are tested and evolve in medicine, the nature of functional explanations, theory reduction, and the role played by intuition and judgment in clinical diagnosis and treatment.

## POLITICAL SCIENCE

Pol 5322 American Social Policy
(4 cr) Gray

American government actions affecting the distribution of social benefits such as health care, education, and housing; social burdens such as taxation and regulation of social conduct. Relationships between government action and social problems; possibilities for change.

## PUBLIC AFFAIRS

PA 5498 Ethics and Public Policy
(3 cr) Anderson

Examines complex policy questions through case studies in the areas of biomedicine, journalism, business, and education.

PA 5945 Ethics
Terry

Consideration of the relationship of ethics to leadership.

PA 5973 Social Ethics in Policy Seminar
(3 cr; prereq**; requires separate admissions process)
Terry

Basic frameworks people and societies use to organize ideas to solve problems. Justice, power, freedom, and responsibility defined and contrasted in different frameworks. Designed to help participants understand other points of view and consequences of decisions and to make choices at a more reflective level.

## PUBLIC HEALTH

PubH 5516 Ethical Dimensions of Public Health
(1 cr) Aroskar

Ethical issues and dilemmas that confront public health professionals and agencies. How ethical/value aspects interface with political, legal, economic, and cultural considerations.

PubH 5523 Public Ethics/Politics and Public Health
(2-3 cr; prereq SPH students or #) Aroskar

Systematic examination of ethical/value aspects related to decision making in public health interventions. Responsibilities of the state in relation to health, politics as public ethics, and distributive justice in a pluralistic society.

PubH 5807 Cross Cultural Perspectives on Health Behaviors
(3 cr) Williams

Introduces cross-cultural issues (both international and sub-cultural) that influence the health behaviors of people. Consideration of what constitutes culture and how cross-cultural factors are studied.

PubH 5790 Sociology of Medicine and Health Care: An Introduction to Medical Sociology
(4 cr; +Soc 5855) Litman

Social and psychological components of health and medical care. Organization and delivery of health care services, their problems and perspectives; focus on the patient, care provider, and environment where health care services are dispensed.

PubH 5791 Public Health and Medical Care Organization
(3 cr) Resnick

Sociopolitical, economic, and moral/ethical issues confronting the public health and medical care system in the U.S. Trends and future directions in service provision, manpower, financing and health services organization, and implications for the public's health.

PubH 5793 Economic Aspects of Health Care
(3 cr; prereq hospital administration student or #) Christianson

Economic analysis of American health care sector; problems of pricing, production and distribution. Evaluating health care services as one factor contributing to nation's health.

PubH 5794 Public Policy in Health Care
(3 cr; prereq hospital administration student or #) Kralewski

Development and present status of selected public policy issues in social, economic, and political contexts. Alternative courses of possible public action review.

PubH 8750 Seminar: Alternative Patterns of Health Care
(4 cr; offered Fall every other year) Litman & Resnick

In depth examination of problems associated with alternative approaches to organization, financing, and delivery of ambulatory care, long-term care, maternal and child care, and mental health.

PubH 8752 Seminar: Comparative Health Care Systems
(3 cr; prereq #) Litman

Examination and comparison of the origin and development of various national systems of health care and their relationship to the social, political, economic, and cultural characteristics of the countries involved.

PubH 8761 Health Economics
(3 cr; + Econ 8682) Feldman
Behavioral models of hospitals; the supplier-induced demand controversy; cost-benefit analysis; human capital, health, and labor market behavior; and new developments in the health insurance markets.

PubH 8770 Seminar: Health and Human Behavior
(3 cr; + Soc 8855; prereq #) Litman offered alternative yrs
Sociology of health and health care; social and personal components of behavior in sickness and in health; community health; relationship of social and cultural factors in the organization and delivery of health care services.

PubH 8790 Seminar: Political Aspects of Health Care
(3 cr; prereq PhD student in hospital administration or #; offered alt yrs) Litman
Interrelationships between government, politics, and health care; the political and social basis of health legislation and community decision making in provision and modification of health services.

PubH 8796 Topics in Health Economics
(3 cr) Leonard, staff
General principles of health economics applied to current issues in health. Implications for health policy.

## SOCIOLOGY

Soc 5147 Sociology of Mental Disorders
(4 cr; prereq 1001, 3102 or #) Malmquist
Social definitions and origins of mental illness, its epidemiology, patterns of reaction to mental illness including sociological analysis of mental health programs and their effectiveness. Social policy implications of mental health definitions.

Soc 8148 Law, Society and the Mental Health System
(3 cr; + CJS 8205) Malmquist
Intensive survey of psychopathology, with reference to criminal behavior and the criminal justice system.

If you have information regarding additions or corrections, please contact:

Dorothy Vawter, Ph.D.
Center for Biomedical Ethics
3-110 Owre Hall/UMHC Box 33
Harvard Street at East River Road
Minneapolis, MN 55455
612/625-4917

Appendix D

## GRADUATE MINOR IN BIOETHICS

### Proposed Initial Core Faculty for the Graduate Minor in Bioethics

Mila A. Aroskar, Ed.D., Associate Professor of Health Services Administration, School of Public Health, Associate Member, Graduate School.

Dianne M. Bartels, R.N., M.A., Associate Director, Center for Biomedical Ethics.*

Arthur L. Caplan, Ph.D., Director, Center for Biomedical Ethics, Professor of Philosophy, and Professor of Surgery.

Patricia Crisham, R.N., Ph.D., Associate Professor, Graduate Program in Nursing.

Norman Dahl, Ph.D., Professor of Philosophy.

John M. Dolan, Ph.D., Associate Professor of Philosophy and American Studies.

John Eyler, Ph.D., Professor of History of Medicine and Biological Sciences.

Jasper Hopkins, Ph.D., Professor of Philosophy.

H.E. Mason, Ph.D., Professor of Philosophy.

Kathleen Price, J.D., Professor of Law and Director of Law Library.

Reinhard Priester, J.D., Research Fellow, Center for Biomedical Ethics.*

Michael Root, Ph.D., Associate Professor of Philosophy.

Naomi Scheman, Ph.D., Associate Professor of Philosophy, Shared faculty and Chair, Women's Studies Department.

Dorothy E. Vawter, Ph.D., Research Associate, Center for Biomedical Ethics.*

* Core faculty currently without graduate faculty appointments.

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Philosophy
355 Ford Hall
224 Church Street S.E.
Minneapolis, Minnesota 55455

April 5, 1989

Professor Arthur L. Caplan
Center for Biomedical Ethics
3-110 Owre Hall
UMHC Box 33

Dear Art,

At its meeting on April 3, the Council of the Department of Philosophy voted unanimously to support the Center for Biomedical Ethics' proposal for a Graduate Minor in Bioethics. Our curriculum guidelines will be revised so that we can aim each year to teach one graduate course in ethical theory, one 5000 level course and one 8000 level course in bioethics. At least we promise to offer these courses within a two year period.

Best of luck with your new program. As you know, several of our graduate students will be quite interested in enrolling in such a minor program.

Sincerely yours,

Marcia

Marcia M. Eaton, Chair
Department of Philosophy

MME/ra

UNIVERSITY OF MINNESOTA
TWIN CITIES

Office of the Vice President for Health Sciences Affairs
432 Morrill Hall
100 Church Street S.E.
Minneapolis, Minnesota 55455
(612) 624-1800

30 March 1989

Arthur L. Caplan, Ph.D.
Director of Graduate Studies
Center for Biomedical Ethics
3-110 Owre/UMHC Box 33
Harvard St. at East River Road
Minneapolis, Minnesota 55455

Dear Doctor Caplan:

In the past you have kept me apprized of the development of a proposal to offer a Graduate Minor in Bioethics to the students of the University of Minnesota. This office encouraged you as such was the intent when the Center for Biomedical Ethics was established; i.e., to support the student and faculty interest and participation in this disciplinary field which is growing in demand as our community of man deals with the impact of advancements in the sciences.

I have reviewed the proposal and believe that it offers a most appropriate organizational structure for meeting the needs of the University's response to a recognized need. Such an organized offering will serve our students well; it should also support the interdisciplinary collaboration of the faculties of our various collegiate units in the University.

Therefore, as the Acting Vice President for the Health Sciences, I endorse the proposal for the creation of a Graduate Minor in Bioethics.

Sincerely,

Cherie Perlmutter

Cherie Perlmutter
Acting Vice President for the
Health Sciences

UNIVERSITY OF MINNESOTA
TWIN CITIES

Office of the Dean
Medical School
Box 293 UMHC
420 Delaware Street S.E.
Minneapolis, Minnesota 55455

(612) 626-4949
Office at 3-120 Owre Hall

March 31, 1989

Arthur L. Caplan, Ph.D., Director
Center for Biomedical Ethics
3-110 Owre Hall

Dear Art:

I enthusiastically endorse the Graduate Minor in Bioethics.

The program and the curriculum are very strong, and the need is great. It will represent a valuable addition to the graduate programs and will draw upon faculty strengths of several disciplines.

Sincerely,

Dave

David M. Brown, M.D.
Chairman, Deans' Policy
Council for Biomedical Ethics

DMB/mh

UNIVERSITY OF MINNESOTA
TWIN CITIES

School of Public Health
A302, Box 197 Mayo Memorial Building
420 Delaware Street S.E.
Minneapolis, Minnesota 55455

(612) 624-6669

April 3, 1989

Arthur L. Caplan, Ph.D.
Center for Biomedical Ethics
3-110 Owre Hall

Dear Art:

I am delighted to support your proposal for a Graduate Minor in Bioethics. The interest in this area is impressive and it is high time we used the excellent resources you have developed to offer formal training. I have been impressed with the growing numbers of our students and others I meet who express active interest in this field. The program you propose seems quite reasonable and consistent with the talent available. I am pleased to support it.

Sincerely,

Bob

Robert L. Kane, M.D.
Dean

RLK/slc:me:sph

APR 10 1989

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Medicine
Phillips-Wangensteen Building
516 Delaware Street S.E.
Minneapolis, Minnesota 55455

April 6, 1989

Vicki Field
Assistant to the Dean
Graduate School
University of Minnesota
333 Johnston Hall

Dear Vicki,

We have completed our proposal for establishing a formal emphasis in genetic counseling within the existing Genetics graduate program. Bonnie LeRoy, M.S., has helped me prepare this document and we feel that it meets with the guidelines that you sent to me on October 12, 1988.

I have submitted this proposal to the Department of Genetics and Cell Biology, Genetics Graduate Program Steering Committee for review, and they have approved it. In fact, the members of the subcommittee are quite enthusiastic about the proposal. I have also submitted this proposal to the Graduate Committee of the Institute of Human Genetics and they have unanimously approved it.

As commented in the proposal, a similar document was submitted to the American Board of Medical Genetics for accreditation of this program. Approval was granted on March 20, 1989 for five years.

Bonnie LeRoy and I will be glad to answer any questions or meet with any members of the Graduate School to review this proposal. Thank you for the help. We look forward to your response.

Sincerely yours,

Richard King

Richard A. King, M.D., Ph.D.
Director, Genetics Division
Professor, Department of Medicine
and Institute of Human Genetics

RAK:pr
cc: Tony Faras
Perry Hackett

c K8
VF

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Genetics and Cell Biology
250 Biological Sciences Center
1445 Gortner Avenue
St. Paul, Minnesota 55108-1095

April 4, 1989

Dean Robert Holt
Graduate School
Johnston Hall
University of Minnesota
Minneapolis Campus

Dear Dean Holt:

Ms. Vickie Field has received a revised version of the proposal for a Genetic Counseling emphasis for the Master's Degree in Genetics. These modifications have been approved by the Human Genetics Graduate Committee comprised of Profs Kathleen Conklin, Richard King, Matt McGue, Harry Orr, Steve Rich, and Brian Van Ness. The proposal was approved in form and content by the Genetics Steering Committee, which is comprised of Profs. David Fan, Jim Fuchs, Perry Hackett, Richard King, Pete Lefebvre, Steve Rich, Jocelyn Shaw and D. Peter Snustad; details were left to Professor King and myself in collaboration with the Human Genetics Graduate Committee.

I am happy to report, via Professor King, that the program has been accreditted by the American Board of Medical Genetics. We expect that this latest development will continue to enhance the image of Genetics at the University of Minnesota.

Sincerely yours,

Perry B. Hackett

Perry B. Hackett
Associate Professor and DGS, Genetics

3/31/89

**University of Minnesota**

# Proposal for an Emphasis in Genetic Counseling for the Master's Degree Plan B in Genetics

## Introduction

Genetic counseling has become a major health care service. As the ability to diagnose and treat genetic diseases grows, the demand for genetic services also increases. Today, the genetic counselor works in the University health care system, the private hospital, the health maintenance organization, the diagnostic laboratory, the research laboratory, private industry, and a variety of other settings. The genetic counselor works directly with families in crisis and health care professionals dealing with genetic disease, and must be trained to assess risk, communicate pertinent information, discuss ethical issues and provide supportive care. With the rapid growth of new information, the genetic counselor must always update by attending journal clubs, reading the literature and attending meetings. The flexibility and independence inherent in the position along with the growth in the field of clinical genetics, has led to a tremendous level of interest in the study of genetic counseling.

Presently, the graduate program in Genetics at the University of Minnesota does not incorporate the necessary training structure for the study of genetic counseling. The training structure is governed by the requirements for board certification. The proposed program was developed in response to student interest and with the intent of promoting the growth of human and medical genetic study at the University of Minnesota.

The proposed program incorporates classwork in genetics, bioethics and counseling skills geared to family counseling. The intent is to provide the student with a broad understanding and a solid knowledge of genetic principles and human medical genetics. The student will be able to incorporate the study of ethical issues and counseling problems with their knowledge of genetics. Individuals and families dealing with genetic disease are not only in need of facts pertaining to the disease and the genetics of the condition, but also are in need of a trained professional who is able to discuss the ethical issues and provide psychological support. The program also provides the student with first hand clinical experience at active genetic counseling centers. Through a variety of clinical internship settings, the student will be able to draw upon multiple experiences for learning purposes. The curriculum is designed to develop genetic counselors adequately trained for the future work force.

## The Proposed Program - Program Objectives

The objectives of the Master's degree program in genetics with an emphasis in genetic counseling are to train students who, upon graduation, will be able to:

1. elicit and interpret individual and family and medical histories.
2. demonstrate knowledge of the medical aspects of genetic disease.
3. demonstrate sufficient knowledge of genetic and mathematical principles to understand the clinical, genetic and mathematical bases for genetic risk estimates.
4. integrate clinical and genetic information in order to communicate the limitations, interpretations and significance of specialized genetic and laboratory procedures.
5. demonstrate communication skills sufficient to transmit pertinent information effectively.
6. demonstrate interviewing skills and counseling techniques needed to elicit the information necessary to help individuals and families reach an appropriate conclusion, anticipate areas of difficulty and conflict, help the patient recognize and cope with their psychological needs, and recognize those situations requiring referral to other health care professionals.
7. formulate programs of action utilizing health care resources available to individuals and families.
8. be eligible to sit for the American Board of Medical Genetics examination.

These objectives are adapted from the 1978 Report of the Council on Accreditation and Certification of the American Society of Human Genetics.

## Admission Requirements

Students will be admitted into genetics by the Graduate School after having been recommended by the steering committee of the genetic counseling program. Admission into the genetic counseling program requires the Graduate Record Examination (both the aptitude and the advanced biology exams), a grade point average of 3.2 or better, the prerequisites listed below and an interview with the program director and associate program director. Following all interviews, five or fewer students will be selected for the program each year. With the exception of the first year, the deadline for application to the program will be March 1. Applications for the first class will be accepted up to June 1st.

Students must demonstrate the following prerequisites:

1. Bachelor's degree in a relevant science or related field
2. General genetics
3. Biochemistry
4. Statistics
5. Introductory Psychology or Social Science

Recommended courses include:

1. Developmental Biology
2. Physiology
3. Human Genetics
4. Ethics or Introductory Philosophy
5. Calculus
6. Physics

**Curriculum**

The program will follow the Master's degree Plan B. 400 hours of clinical internship documented through a logbook will substitute for the plan project paper requirement.

During the first year, the student will be able to choose 2 clinical experience rotations. The student will be expected to put at least 100 hours of work into these rotations (50 hours each). Students will be expected to keep a log of their experiences and write a report of one case study or laboratory case from each rotation. Second year students will complete 3 clinical rotations each 10 weeks in duration. Each 10 week rotation will involve 100 hours of work for a total of 300 hours and a total of 50 individual patient interactions. During the second year, students will be involved in preclinic conference, clinics and inpatient consults. Students will complete family, health and pregnancy histories, and provide family genetic counseling. Students will follow up with phone calls, letters and return visits to assess needs and make referrals to community agencies. Students will perform library searches in preparation for counseling. Students will maintain a log of all patient interactions. The student logbook will involve a summary and critique of patient interactions. These case studies will allow students to review each patient interaction and assess their counseling skills and progress. The logbook will also serve as a record of the case studies with which each student is involved. Graduates will be eligible for the board examination if they can document 50 distinct cases with which they have had primary involvement. Students from this program would then be board eligible upon graduation.

The logbook and progress in the clinical internships will be monitored in the required Genetic Counseling Seminars and by the steering committee responsible for overseeing the direction of the program. Students will be evaluated by the counselor or supervisor in charge of each intership rotation.

In addition to clinical work, students will assist staff on projects involving publications, record keeping, phone triage and rounds. Students will attend and present at community lectures and patient rounds.

The program is designed to be completed in two years although some students may take as long as three years. Graduation will result in a Master's degree with a major in Genetics and a minor in Bioethics, Family Social Science, Psychology, or a relevant field of study of the student's choice.

The detailed curriculum including specific classes, clinical internship rotations, electives and required related clinical experience are provided in Appendix I.

### Graduation Requirements

Graduates from the Genetic Counseling Program will:

1. Maintain a 3.0 or better average.
2. Complete 2 clinical rotations in the first year of the program designed to develop skills relevant to medical genetics or counseling. Students will be monitored with each

rotation but grades will be given at the end of the first year. Grades will be given for both rotations after successful completion of the second rotation.

3. Complete 3 clinical rotations in the second year of the program in genetic counseling settings. Students will be monitored with each quarter but grades will be given at the end of the second year. Grades will be given for each clinical rotation after completion of all three rotations.
4. Complete a log book demonstrating 400 hours of clinical work and interaction with at least 50 genetic counseling patients.
5. Receive a passing grade on the final oral examination.

## Educational and Social Need for the Program

The Genetic Counseling Training Program was developed in part as a response to student interest as well as a response to meet the need for individuals trained to help families deal with the growing ability to diagnose genetic disease. The genetic counseling service at the University of Minnesota Hospital receives on average 50 inquiries per year regarding training for the position. In addition, the Minnesota Human Genetics League sponsors undergraduate students during the summer months in a short genetic counseling internship. Student demand for this program is also supported by the existing enrollment of students in other programs throughout the country.

The greater social need for the program can be seen when examining the explosion of genetic medical breakthroughs in the recent years. Many birth defects can be prenatally diagnosed and some can be treated. Individuals at risk for having a child with a genetic disease can in many cases be carrier tested. The list of genetic diseases which can be presymptomatically detected is growing rapidly. The ability to detect genetic susceptibility to hazards in the workplace is developing. Recent advances in cancer research have established a genetic etiology in many cases. Treatment options for genetic diseases pose ethical dilemmas for families. All of these issues and more are becoming common in today's medical society and the genetic counselor is the health care individual trained to deal with these situations.

The increasing demand for genetic services can also be demonstrated by the number of positions available. Job opportunities from two 1988 newsletters of the National Society of Genetic Counselors are provided in Appendix II. Presently, there are 11 programs in the United States designed to train individuals at the master's level for genetic counseling. The accredited programs which are presently in operation are as follows:

1. Sarah Lawrence College, Bronxville, New York
2. Universtiy of Wisconsin, Madison, Wisconsin
3. University of Michigan, Ann Arbor, Michigan
4. University of Colorado, Denver, Colorado
5. University of Pittsburgh, Pittsburgh, Pennsylvania
6. University of California, Irvine, California
7. University of California, Berkeley, California
8. University of South Carolina, Columbia, South Carolina
9. Tulane University, New Orleans, Louisiana
10. Howard University, Washington, DC
11. Children's Hospital Medical Center, Cincinnati, Ohio

All programs report that they are able to place their students upon graduation.

The program at the University of Minnesota proposes to accept 5 students per year with a total of 10 students in the system at any given time. The University presently has the resources to adequately train these students for the job force. This program will bring the University national recognition and the graduates will demonstrate the superior education received at this institution. As genetic counselors are also intensely involved with public education through speaking and the news media, the public will also learn more about the educational opportunities at the University of Minnesota.

**Comparison with similar programs**

Genetic counseling training programs across the country are structured in accordance with the criteria set by the American Board of Medical Genetics. All genetic counselors must graduate from an accredited program in order to be eligible for board certification. The proposed program at the University of Minnesota consists of the necessary classwork and clinical internships for accreditation; application for accreditation has been submitted to the American Board of Medical Genetics and will be acted on in April of 1989. Graduates of genetic counseling training programs in the United States follow a set course of study. All programs offer a line of study incorporating human and medical genetics with counseling issues. All programs also involve clinical exposure with patients at genetics units. The minimum requirements for certification as set by the American Board of Medical Genetics are included in Appendix III.

### Quality Control - Qualifications of Faculty

All faculty members with direct teaching responsibilities in the area of genetic counseling in the proposed training program are, in accordance with the American Board of Medical Genetics, board certified in medical genetics within their specific areas of expertise. The following individuals will constitute the graduate faculty for the genetic counseling training program at the University of Minnesota:

| | |
|---|---|
| Program Director: | Richard A. King, M.D., Ph.D., Clinical Geneticist |
| Associate Program Director: | Bonnie S. LeRoy, M.S., Genetic Counselor, Student Advisor |
| University Faculty: | Diane C. Arthur, M.D., Clinical Cytogeneticist<br>Susan A. Berry, M.D., Clinical Geneticist<br>Arthur Caplan, Ph.D., Bioethicist<br>Betsy Hirsch, Ph.D., Clinical Cytogeneticist<br>Mary Ella Pierpont, M.D., Ph.D., Clinical Geneticist |

In addition to the faculty listed above, the proposed program will utilize the expertise of genetic counselors working in genetics centers within the Minneapolis and St. Paul areas. These additional staff will be responsible for training students in the clinical internship rotations outside of the University setting. This will provide the student with a wide range of experience and exposure to a variety of genetic counseling settings. The outside staff members will evaluate the students with respect to their performance in the clinical rotations and will also be involved with student selection, teaching in the seminars and program review and revision. The following individuals will constitute the outside faculty for the program:

Mary Ahrens, M.S., Genetic Counselor, Metropolitan Medical Center, Perinatal Center
Shari R. Baldinger, M.S., Genetic Counselor, Abbott Northwestern Hospital, Perinatal Center
Deborah Johnson, M.D., Clinical Geneticist, Group Health, Inc., Apple Valley Clinic
Barbara Kunz, M.S., Genetic Counselor, United and Children's Hospital of St. Paul

Curricula Vitae for all University of Minnesota faculty and outside faculty members listed are provided in Appendix IV.

### Program Governance

As previously stated, students must graduate from an accredited training program in order to be eligible to take the certification examinations. Application for accreditation from the American Board of Medical Genetics was submitted on December 30, 1988. The faculty, curriculum, clinical experience and teaching resources within the proposed program meet all of the criteria for accreditation. Approval is expected in April of 1989.

Within the University setting, a steering committee will be responsible for the overall direction of the program. The committee will consist of the following individuals:

Richard A. King, M.D., Ph.D., Program Director
Bonnie S. LeRoy, M.S., Associate Program Director, Student Advisor
Arthur Caplan, Ph.D., Director of the Center for Biomedical Ethics
Betsy Hirsch, Ph.D., Assistant Laboratory Director, Cytogenetics Laboratory

This committee will select students for admission to the program, review student evaluations from the clinical rotations, monitor student progress, review student performance for graduation, and appoint the final examination committee each year. The committee will also monitor evaluations of the program by the students and other faculty for the purpose of program revision. As application for accreditation must be renewed every year, the committee will be responsible for maintaining accreditation status. The committee members will meet on a quarterly basis at the conclusion of each academic quarter. A report summarizing the meetings will be kept for future reference.

### Implementation

Following approval from the graduate school, students for the first class will be interviewed for acceptance in the Fall of 1989. Students from this class will be expected to graduate in the

Spring of 1991. All coursework and clinical training resources are presently available. The program will utilize the following University resources not previously discussed:

1. The center for biomedical ethics will provide a training project for students with a special interest in this area of study. Students may wish to substitute a bioethics project for a required clinical rotation.
2. The cytogenetics laboratory at the Dight Laboratories and the molecular diagnostic laboratory at the University of Minnesota will provide a training project for students with a special interest in the study of genetics laboratory work. Students may wish to substitute a laboratory project for a required clinical rotation in the first year. The second year should involve patient interaction internships.
3. The biomedical library at the University of Minnesota will be the setting for information retrieval for journal clubs and seminar presentations.

At full operation, maintenance and development of the program will require no major reallocation of resources. Faculty, support staff, equipment, space allocation and library information retrieval services will remain unchanged by this proposal with the exception of the addition of one staff position at the associate program director level. Salary support for this position will be sought through programs and facilities that will benefit from this program.

**University of Minnesota**

# GENETIC COUNSELING TRAINING PROGRAM

## Curriculum - Year One

Required courses:

| | | |
|---|---|---|
| GCB 8131 | Advanced Genetics I | 4 credits |
| GCB 8132 | Advanced Genetics II | 4 credits |
| GCB 5033 | Population Genetics | 4 credits |
| GCB 5030 | Laboratory Genetics or | 2 credits |
| GCB 5125 | Recombinant DNA Laboratory | |
| CBN 5104 | Prin. of Development | 1 credit |
| Phsl 5100 | Systems Physiology | 5 credits |
| Phil 5XXX | Ethical Issues in Health Care | 4 credits |
| FSoS 5200 | Family Relationship or | 5 credits |
| FSoS 5202 | Social Psychology of Close Relationships | 5 credits |
| GCB XXX | Genetic Counseling Clinical Internship Rotations I and II | 2 credits |

Elective courses:

Students should complete 3 - 4 elective courses during the first year. The elective courses should be applied toward the student's choice of a minor reflecting their area of interest.

Clinical Internship Rotations:

In the first year, the student will choose 2 internship rotations from the list below. The student will be expected to put at least 100 hours of work into these rotations (50 hours each). The objective of these rotations is to introduce the student to medical genetics and clinical genetics experience. Rotation options include:

1. Dight Laboratories, Cytogenetics Laboratory at the University of Minnesota
2. Cancer Family Clinic at the University of Minnesota
3. Eye Clinic at the University of Minnesota
4. Derm/Myelo Clinic at the University of Minnesota
5. Cytogenetics Laboratory at Abbott-Northwestern Hospital
6. Epilepsy Program through the University of Minnesota
7. University of Minnesota special clinical project of student's choice
8. Molecular Genetics Laboratory at the University of Minnesota

**University of Minnesota**

# GENETIC COUNSELING TRAINING PROGRAM

## Curriculum - Year Two

Required courses:

| | | |
|---|---|---|
| GCB 5073 | Advanced Human Genetics | 4 credits |
| Phil 8XXX | Bioethics Seminar | 4 credits |
| GCB XXX | Genetic Counseling Seminar I, II, III | 6 credits |
| GCB XXX | Genetic Counseling Clinical Internship Rotations III, IV, V | 3 credits |

Electives:

Second year students should complete 6 - 8 electives. These electives should be applied to the completion of the minor of the student's choice.

Clinical Internship Rotations:

In the second year, the student will complete 3 rotations. Each is a 10 week rotation. The student will put 100 hours into each rotation for a total of 300 hours. The student will be required to keep a detailed logbook. The student should be able to document involvement with at least 50 cases. Patient encounters and issues will be discussed in the genetic counseling seminars. The objective of these rotations is to provide the student with practical experience. Clinical rotation options involve:

1. University of Minnesota Genetics/Metabolic Clinic
2. University of Minnesota Muscular Dystrophy/OB Clinics
3. Abbott Northwestern Hospital Perinatal Center
4. Group Health, Clinical Genetics Division
5. United and Children's Hospitals of St. Paul - Genetic Counseling Division
6. Hennepin County Medical Center's Perinatal Department and Huntington Disease Clinic
7. Department of Biomedical Ethics

Related Clinical Experience: Students will be required to attend weekly clinic conferences and genetics rounds as related to their rotation participation. Each center will have weekly conferences and clinical rounds. Students are encouraged to attend relevant conferences not required by their rotation and seminars and lectures given by University and invited staff. Students are encouraged to participate in clinical projects such as publications and data management. Students will have the opportunity to attend outreach clinics and participate in community service seminars.

**University of Minnesota**

# GENETIC COUNSELING TRAINING PROGRAM

## Curriculum - Electives

| | | | |
|---|---|---|---|
| Anat | 5127 | Problems in Modern Developmental Biology | 2 credits |
| CLS | 5101 | Principles of Clinical Science | 5 credits |
| GCB | 5024 | The Genetics of Development | 4 credits |
| MdBc | 5101 | Medical Biochemistry | 4 credits |
| Psy | 5014 | Psychology of Human Learning & Memory | 4 credits |
| Psy | 5137 | Intro to Behavior Genetics | 4 credits |
| SW | 8203 | Family Stress | 3 credits |
| SW | 8423 | Chronic Illness - Impact on Families | 3 credits |
| GCB | 8060 | Special Topics, Computer Application in Molecular Biology | 2 credits |
| Phil | 5311 | Ethical Theory | 4 credits |
| Phil | 5312 | Foundations of Ethics | 4 credits |
| FSoS | 5242 | Death, other Losses and the Family | 3 credits |
| FSoS | 5260 | Dynamics of Family Decision Making | 3 credits |
| FSoS | 8203 | Family Stress, Coping and Adaptation | 3 credits |
| FSoS | 8214 | Theories of Marital & Family Therapy | 4 credits |
| FSoS | 8215 | Clinical Issues in Marital & Family Therapy | 4 credits |
| FSoS | 8255 | Conceptual Framework in the Family | 4 credits |
| FSoS | 8260 | Family Decision Making | 4 credits |

Students may choose electives from this list or they may choose electives not on this list reflecting an interest in a different area of study. Any area of study not on this list must be approved by the steering committee of the genetic counseling training program. The purpose of this is to ensure that students design a program of study which meets the criteria set by the American Board of Medical Genetics.

Fall 1988

# Classified • Classified • Classified

*THE JOB CONNECTION, NSGC's streamlined job search service, combines our* Perspectives' *classified section with our jobs tline. The classified listings printed in this issue represent the most recent additions to the service. Members interested in omplete or regional information may receive a computerized printout by contacting the Executive Office.*

CAMPBELL, CA: Immediate opening for Masters-level BC/BE Genetic Counselor with minimum 2 years experience.

*Responsibilities:* General genetics; specialty clinics; education and outreach.

*Contact:* Peggy Purvis, Personnel Representative, San Andreas Regional Center, 300 Orchard City Drive, Suite 170, Campbell, CA 95008; 408-374-9960. EOE/AA

SACRAMENTO, CA: January '89 opening for Masters-level BC/BE Genetic Counselor. Excellent salary & benefits. New position to work with 3 genetic counselors & 1 MD geneticist.

*Responsibilities:* Amniocentesis & CVS counseling; MSAFP counseling; teratology & other prenatal counseling; general genetic referrals & hospital consultations.

*Contact:* Mark Lipson, M.D., Kaiser Permanente Medical Center, 2025 Morse Avenue, Sacramento, CA 95825; 916-973-7374. EOE/AA

SAN FRANCISCO, CA: Immediate opening for BC/BE Genetic Counselor. Excellent salary & benefits.

*Responsibilities:* Prenatal & general genetic counseling; case coordination.

*Contact:* Kerry Silvey, M.S., Kaiser Permanente Medical Center, 2280 Geary Boulevard, San Francisco, CA 94115; 415-929-5712. EOE/AA

FARMINGTON, CT: Immediate opening for BC/BE Genetic Counselor with MS, MSW or RN. Salary Range: $25,000 - 30,000 depending on experience.

*Responsibilities:* Large, active program: general & perinatal genetics, satellite programs, teratology; prenatal diagnosis; group amniocentesis counseling; CVS counseling. Faculty appointment & research opportunity available.

*Contact:* Robert Greenstein, M.D., UCONN Health Science Center, Div Human Genetics/Pediatrics, Room L-5072, Farmington, CT 06032; 203-674-1465. EOE/AA

NORWALK, CT: Immediate opening for BC/BE Genetic Associate at Yale University School of Medicine-affiliated hospital.

*Responsibilities:* Coordinate amniocentesis patients; pediatric & genetic clinics; public & professional education.

*Contact:* Isabel E. Fawcett, Supervisor of Employment, Norwalk Hospital, Maple Street, Norwalk, CT 06856; 203-852-3110. EOE/AA

INDIANAPOLIS, IN: Immediate opening for Director, Genetic Services. BC/BE Genetic Counselor with minimum 3 years experience in counseling or genetic service. Clinical or Medical Geneticist, Cytogeneticist PhDs may substitute for experience. Salary Range: Low $30,000s.

*Responsibilities:* Direct all state MCH genetic services: newborn screening, specialty clinics, Regional Genetics Network.

*Contact:* Diane Downing, MSN, Director, Division of Maternal Child Health, 1330 W. Michigan Street, Indianapolis, IN 46206-1964; 317-633-8457. EOE/AA

COLUMBIA, MO: Immediate opening for Masters-level Genetic Counselor with BC/BE to join 3 medical geneticists, 1 PhD geneticist & 3 genetic counselors. No experience necessary.

*Responsibilities:* Case management of patients with metabolic disease; coordinate existing MSAFP program.

*Contact:* Judith H. Miles, MD, PhD, University of Missouri at Columbia Hospital Clinics, 1 Hospital Drive, Columbia, MO 65212. EOE/AA

OMAHA, NE: Immediate opening for Masters-level BC/BE Genetic Counselor.

*Responsibilities:* Pediatric genetics; specialty clinics; prenatal diagnosis & counseling; MSAFP; prenatal DNA studies; public & professional education.

*Contact:* Warren Sanger, Ph.D., MCRI, University of Nebraska Medical College, 4420 Dewey Avenue, Omaha, NE 68105; 402-559-5070. EOE/AA

HANOVER, NH: Immediate opening for BC/BE Genetic Counselor or Nurse with experience in genetics. Salary Range: $24,000-32,000 depending on experience.

*Responsibilities:* Coordinate outpatient clinics; genetics & dysmorphology program; inpatient consultation; prenatal diagnosis; MSAFP; professional education.

*Contact:* Susan Berg, M.S., Dartmouth Hitchcock Medical Center, Butler Building, Hanover, NH 03756; 603-646-8453. EOE/AA

MANHASSET, NY: Immediate opening for Masters-level BC/BE Genetic Counselor at tertiary care center affiliated with Cornell University Medical Center. Salary Range: $28,000+, depending on experience.

*Responsibilities:* Counsel prenatal & genetics patients; teach & supervise genetic counselors, medical residents & fellows.

*Contact:* Julie Potter, M.S., Marjorie Williams, M.S. or Gittel Silverberg, M.S., North Shore University Hospital, Division of Genetics, 300 Community Drive, Manhasset, NY 11030; 516-562-4610 or 4615. EOE/AA

NEW HYDE PARK, NY: Immediate opening for BC/BE Genetic Counselor with experience in counseling, diagnosis, clinical administration, research & teaching.

*Responsibilities:* All aspects of counseling & case management for broad range of genetic services: diagnosis, teratology; MSAFP; prenatal diagnosis.

*Contact:* Audrey Heimler, M.S., Schneider Childrens Hospital / Long Island Jewish Hospital, Division of Human Genetics, New Hyde Park, NY 11042; 718-470-3010. EOE/AA

NEW YORK, NY: Mid-October opening for Masters-level, BC/BE Genetic Counselor/MSAFP Coordinator. Experience preferred but not essential.

*Responsibilities:* Coordinate MSAFP program; prenatal diagnosis (amniocentesis & CVS); participate in active clinic.

*Contact:* Robert J. Desnick, Ph.D., M.D., Chief, Developmental Medical Genetics, Mt. Sinai Medical Center, Fifth Avenue at 100th Street, New York, NY 10029; 212-241-6947. EOE/AA

NEW YORK, NY: Immediate opening for BC/BE Genetic Counselor. Research skills helpful. Full or parttime work negotiable.

*Responsibilities:* Breast cancer research project: pedigree development & verification; follow-up; patient counseling;

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liaison between research staff & subjects.

*Contact:* Daniel Miller, M.D., Strang Clinic, 55 E. 34th Street, New York, NY 10016; 212-734-4838. EOE/AA

**New York, NY**: Immediate opening for Masters-level BC/BE Genetic Counselor.

*Responsibilities:* Obstetric & pediatric counseling; coordinate screening program. Opportunity for writing & teaching.

*Contact:* Kwame Yeboa, M.D., Director, Division of Genetics, Columbia-Presbyterian Medical Center, 3959 Broadway, New York, NY 10032; 212-305-6731. EOE/AA

**Valhalla, NY**: Immediate Openings for BC/BE Genetic Counselors at University-affiliated hospital. Work on comprehensive genetics team.

*Responsibilities:* All aspects of counseling & case management: birth defects, mental retardation, reproductive evaluations; abnormal sexual development; prenatal diagnosis; MSAFP; teratology. Wide range of specialty clinics. Opportunity to participate in satellite clinics available.

*Contact:* Linda Higgs, M.S., Westchester County Medical Center, Division of Medical Genetics, Valhalla, NY 10595; 914-347-3011. EOE/AA

**Providence, RI**: Immediate opening for Masters-level, BC/BE Genetic Counselor as member of existing team of 2 genetic counselors and 1 MD geneticist. Some MSAFP testing & counseling experience preferred.

*Responsibilities:* Assist with statewide MSAFP program; preamniocentesis counseling for advanced maternal age & other disorders; teratogen counseling; birth defects and dysmorphology consultation; lecturing; participate in research & manuscript preparation.

*Contact:* Marshall W. Carpenter, M.D., Women and Infants' Hospital, Department of Maternal & Fetal Medicine, 101 Dudley Street, Providence RI 02905, 401-274-1100.

**Fairfax, VA**: Immediate opening for BC/BE Genetic Counselor.

*Responsibilities:* Counseling pediatric & adult patients: CVS, amniocentesis, MSAFP, follow-up for large prenatal research project.

*Contact:* Shirley L. Jones, R.N., M.S., Genetics & IVF Institute, 3020 Javier Road, Fairfax, VA 22031; 703-698-7355. EOE/AA

**Richmond, VA**: January '89 opening for Masters-level BC/BE Genetic Associate/ Faculty Research Assistant. Strong teaching and organizational skills sought; computing skills preferred. Salary Range: $22,000 - 25,000, depending on training and experience.

*Responsibilities:* Professional education; track and counsel follow-up patients. Apply with 3 letters of recommendation by 10/31/88.

*Contact:* Dr. Joann Bodurtha, Medical College of VA, Dept. Human Genetics, Box 33, MCV Station, Richmond, VA 23298-0033; 804-786-9632. EOE/AA

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*THE JOB CONNECTION, NSGC's streamlined job search service, combines our* Perspectives' *classified section with our jobs line. The classified listings printed in this issue represent the most recent additions to the service. Members interested in complete or regional information may receive a computerized printout by contacting the Executive Office.*

**TUCSON, AZ:** Immediate Opening for Masters-level, BC/BE Genetic Counselor.
Responsibilities: Prenatal diagnosis; MSAFP; CVS; teratogen counseling; high risk pregnancy counseling; community & professional education.
Send Resume: Lewis Shenker, MD, University Medical Center, Dept. OB/GYN, 1501 N. Campbell Avenue, Tucson, AZ 85724; 602-626-6636. EOE/AA.

**BERKELEY, CA:** Immediate Opening for Part time (80%) Masters-level, BC/BE Genetic Counselor. One year experience in genetic counseling preferred; Sickle Cell disease experience desirable.
Responsibilities: Provide comprehensive care to sickle cell populations in multidisciplinary setting.
Send Resume: Yolanda Rooks, RN, Alta Bates Hospital, Adult Sickle Cell Center, 3001 Colby Street, Berkeley, CA 94705; 415-540-1609. EOE/AA.

**LA JOLLA, CA:** Immediate Opening for BC/BE Genetic Counselor.
Responsibilities: Competitive longitudinational research project for study of DH Muscular Dystrophy including coordination; field diagnosis/assistance; data collation and case follow up.
Send Resume: Stephen Jacobsen, PhD, University of California San Diego, Dept. Pediatrics, M-009F, La Jolla, CA 92093; 619-534-6261. EOE/AA.

**SAN FRANCISCO, CA:** Immediate Opening for Part time (50%) Masters-level, BC/BE Genetic Counselor. One year experience and bilingual/bicultural background preferred. Salary Range: $2448/2948/mo, based on full time.
Responsibilities: New program serving underserved populations covering a wide range of genetics; newborn follow-up for variety of birth defects; some teaching in genetic counseling and medical school programs.
Send Resume: Ilana Mittman, MS, San Francisco General Hospital, Dept. OB-GYN, 1001 Potrero Avenue, Room 6D23, San Francisco, CA 94110; 415-821-3133. EOE/AA.

**SAN FRANCISCO, CA:** Immediate Opening for Masters-level, BC/BE Genetic Counselor. Excellent salary & benefits.
Responsibilities: Full range of counseling in reproductive genetics, including amniocentesis, CVS, MSAFP, fetal treatment program.
Send Resume: Mitchell Golbus, MD, University of California San Francisco, Reproductive Genetics Unit, Room U260, San Francisco, CA 94143-0720; 415-476-4157. EOE/AA.

**SAN JOSE, CA:** Immediate Opening for Masters-level, BC/BE Genetic Counselor.
Responsibilities: Prenatal diagnosis. Some travel to San Francisco and Walnut Creek.
Send Resume: John D. Stephens, M.D., California Prenatal Diagnosis Institute, 1390 S. Winchester Blvd, San Jose, CA 95128; 408-866-6266.

**BOYNTON BEACH, FL:** Immediate Opening for BC/BE Genetic Counselor in 350-bed community hospital setting.
Responsibilities: Prenatal diagnosis, amniocentesis, CVS; some pediatrics; professional education opportunity available.
Send Resume: Lisa D'Augelli, MS, Bethesda Memorial Hospital, 2800 S. Seacrest Blvd, Suite 104A, Boynton Beach, FL 33435; 407-738-0448. EOE/AA.

**BOSTON, MA:** Immediate Opening for Project Coordinator, Sickle Cell Newborn Screening. Position requires Masters-level professional; clinical experience preferred; knowledge of Sickle Cell Disease and newborn screening also preferred. Bilingual background helpful. Salary Range in low $30,000s.
Responsibilities: High visibility, high responsibility position includes supervisory & administrative duties; coordination of professional & lay education; overseeing hospital staff training; coordination of total screening program from patient recruitment to follow-up.
Send Resume: Marsha Lanes, MS, Massachusetts Genetics Program, Department of Public Health, 150 Tremont, 2nd Floor, Boston, MA 02111; 617-727-5121. EOE/AA.

**WORCESTER, MA:** Immediate Opening for Masters-level, BC/BE Genetic Associate with one or two years experience.
Responsibilities: Varied responsibilities, including active work as liaison with patients, professional & laboratory.
Send Resume: Mary Q. Lammi, Personnel Recruiter, University of Massachusetts Medical Center, 55 Lake Avenue North, Worcester, MA 01655; 508-856-2181. EOE/AA.

**ROYAL OAK, MI:** Immediate Opening for BC/BE Genetic Counselor.
Responsibilities: Wide variety of responsibilities in pediatric & prenatal practice as part of expanding multidisciplinary team including 1 pediatric geneticist, 3 perinatologists & 1 genetic counselor.
Send Resume: Robert P. Lorenz, MD, William Beaumont Hospital, 3601 W. 13 Mile Road, Reproductive Genetic Program, Royal Oak, MI 48072; 313-288-1968. EOE/AA.

**CAMDEN, NJ:** Immediate Opening for Masters-level, BC/BE Genetic Counselor. Experience preferred.
Responsibilities: Comprehensive service center including prenatal diagnosis; pediatrics; AFP screening; teratology; Fetal Alcohol Syndrome; research; professional & community education.
Contact: Alice Lazzarini, M.S., University of Medicine and Dentistry of NJ-School of Medicine, 401 Haddon Ave, Camden, NJ 08103; 609-757-7812. EOE/AA.

**BROOKLYN, NY:** Immediate Opening for Masters-level, BC/BE Genetic Counselor. Some experience preferred. Salary Range: $32,000 negotiable with experience; excellent benefits including travel & education.
Responsibilities: Prenatal diagnosis & general genetics and specialty clinics on multidisciplinary team at hospital with excellent mental health facility; research opportunity available.
Send Resume: Ernest Lieber, MD, Interfaith Medical Center, Brooklyn Jewish Hospital, Div. of Genetics, 555 Prospect Place, Brooklyn, NY 11238; 718-935-7410. EOE/AA.

**EAST MEADOW, NY:** Immediate Opening for BC/BE Genetic Counselor. Bilingual preferred.
Responsibilities: Coordinate prenatal genetic service including amniocentesis, AFP; professional education including medical students & residents.
Send Resume: Mrs. M. Cosgrove, Nassau County Medical Center, 2201 Hempstead Turnpike, East Meadow, NY 11554; 516-542-2258. EOE/AA.

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**NEW YORK, NY:** Immediate Opening for BC/BE Genetic Counselor.
Responsibilities: Amniocentesis counseling; outreach to community hospitals.
Send Resume: Hody Tannenbaum, MS, Prenatal Diagnosis Laboratory of NYC, 455 First Avenue, New York, NY 10016; 212-578-4712. EOE/AA.

**NEW YORK, NY:** Immediate Opening for BC/BE Genetic Counselor.
Responsibilities: Research in major study involving linkage studies of movement disorder group, including dystonia & essential tremors: Wide range of responsibilities from clinical to data base management. Opportunity for education, genetic counseling and facilitating support groups.
Send Resume: Deborah de Leon, MS, Neurological Institute, Box 77, 710 W. 168th St., New York, NY 10032; 212-305-5779. EOE/AA.

**SYRACUSE, NY:** Spring 1989 Opening for Masters-level, BC/BE Genetic Associate in Dept. Pediatrics at SUNY, Syracuse, NY.
Responsibilities: Coordinate pediatric clinic; counseling & follow-up patients with a wide variety of disorders; clinical research; some teaching.
Send Resume: *(until 4/1/89):* Christine R. Bryke, MD, Yale University School of Medicine, Dept. of Human Genetics, P.O. Box 3333, New Haven, CT 06510; 203-785-2660. *(after 4/1/89):* Dr. Bryke, c/o SUNY Health Science Center, 750 E. Adams Street, Syracuse, NY 13210; 315-473-5450. EOE/AA.

**ASHEVILLE, FAYETTEVILLE & WINSTON-SALEM, NC:** Immediate Openings for 3 BC/BE Genetic Counselor/Educators in Genetic Health Care Unit of the North Carolina Department of Human Resources, Division of Health Services.
Responsibilities: Coordination of genetic satellite services with major medical centers; case identification; broad range of preconceptional, prenatal & pediatric cases; professional & community education; consultation with other state programs.
Send Resume: Elizabeth G. Moore, Genetic Health Care & Newborn Screening Program Manager, Div. Health Services, P.O. Box 2091, Raleigh, NC 27602; 919-733-0385. Please include references. EOE/AA.

**OKLAHOMA CITY, OK:** Immediate Opening for BC/BE Genetic Counselor.
Responsibilities: All aspects of clinical genetics & prenatal diagnosis; service to outreach clinics.
Send Resume: Joyce Shissler, RN, MS or A. Garnica, MD, University of Oklahoma Health Sciences Center, Pediatrics/ Genetics, P.O. Box 26307, Room 2B275, Oklahoma City OK 73126; 405-271-3468. EOE/AA.

**NASHVILLE, TN:** Immediate Opening for BC/BE Genetic Counselor.
Responsibilities: General genetic counseling; teaching & research opportunities available.
Send Resume: Dr. D.N. Singh, Meharry Medical College, Div. Medical Genetics, Dept. Pediatrics, Nashville, TN 37208; 615-327-6786 / 6399. EOE/AA.

**RICHMOND, VA:** January '89 Opening for Masters-level, BC/BE Genetic Associate/Faculty Research Assistant. Strong teaching and organizational skills sought; computing skills preferred.
Responsibilities: Professional education; track and counsel follow-up patients. Apply with 3 letters of recommendation.
Send Resume: Dr. Joann Bodurtha, Medical College of VA - Dept. Human Genetics, Box 33, MCV Station, Richmond, VA 23298-0033; 804-786-9632. EOE/AA.

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*CORRECTION:* The classsified listing in Vol.10, No. 3, erroneously listed the position at Mt. Sinai Hospital in New York City. The position is available in the Division of Medical Genetics.

***Place Your Order Now!***

## Free Packets for National Alcohol-Related Birth Defects Awareness Week

**MAY 14-21,1989**

A free packet, designed to promote National Alcohol-Related Birth Defects Awareness Week, scheduled for the week of Mother's Day, May 14-21, 1989, is available from the National Council on Alcoholism. The packet contains action-oriented information for health professionals and other persons involved in educating the public about alcohol-related birth defects.

Supplies are limited. Interested persons should place their order no later than January 10, 1989, by completing the coupon on this page and mailing it to the National Council on Alcoholism, 1511 K Street, N.W., Suite 320, Washington, D.C. 20005. Orders for single packets will be taken as long as supplies last.

### National Alcohol-Related Birth Defects Awareness Week Packet

I am involved in educating the public about alcohol-related birth defects and would like to receive a free packet. I understand that single orders will be filled on a first come, first served basis.

Name ______________________

Address ______________________

______________________

Affiliation ______________________

Phone ______________________

*Mail completed coupon to the National Council on Alcoholism, 1511 K Street, N.W., Suite 320, Washington, D.C. 20005. Thank you!*

## American Board of Medical Genetics

**Minimum Requirements for Certification:**

Master of Science degree from a program accredited through the American Board of Medical Genetics.

_Course work:_ In the principles of human genetics, including basic principles of genetic transmission and gene action, cytogenetics, immunogenetics, biochemical genetics and developmental genetics; applied human genetics or clinical genetics, including clinical cytogenetics, inborn errors of metabolism, congenital malformations; methods in human genetics/clinical genetics, including laboratory techniques, amniocentesis, pedigree analysis and estimation of genetic risk.

_Course work/Seminars/Tutorials/Clinical Conferences:_ In the behavioral sciences, including psychological aspects as they relate to genetic counseling of patients and their families, interviewing and counseling techniques; crisis intervention; clinical medicine; medical record systems; community services and health care agencies (local, state and federal).

_Supervised Experience in Genetic Counseling:_ There should be at least 50 distinct supervised counseling experiences in families with a wide variety of disorders reflecting the scope of a general Genetics Clinic. Many of these counseling experiences will need to be obtained after graduation. A logbook must be submitted. Work experience in a clinical genetics program can possibly be used as an alternative for the supervised experience in a training program.

-- Recommendation by the Training Program Director as to the candidate's academic record.

-- Recommendation by the Director or Supervisor of a Clinical Genetic Training Program ( in whose program they are doing the practical training) certifying that the individual is competent in communicative and counseling skills under a wide variety of circumstances.

-- Following approval of the individual's course work and experience by the certifying body, the candidate will be admitted to a written 2-part examination. Part 1 will cover basic genetic principles. Part 2 will be involved with counseling techniques and practical and theoretical aspects of genetic counseling.

We recognize that there are individuals, often called "genetic assistants", performing limited disease specific counseling, under the direct supervision of the Clinical Genetics, Ph.D. Medical Geneticist, or Genetic Counselor, for whom certification will not be available.

# Addendum to Clarification of Status Document

## Problem

Graduate students have not been able to effectively communicate with the University Administration through the student assembly, the MSA Forum.

- Conflicts of interest often exist between graduate and undergraduate students

  * Grad students are prevented from presenting issues within MSA Forums
  * Example: Commitment to Focus
  * Example: Libraries

- Information from Administration, routed through MSA, does not reach COGS in a timely or accurate manner.

  * COGS uses a representative process which requires more than 1 or 2 days notice
  * Example: Commitment to Focus

- MSA Forum covers many issues of little or no relevance to graduate students.

## Information

- MSA Services

  * MSA budgets money for administrative costs, committee activities, and miscellaneous minor activities.

- Impact on undergraduates

  * Graduate and professional students would work cooperatively on issues which affect the entire student population.

- Financial

  * Grad students pay COGS fee of $1.00/quarter
  * Grad students (6+ credits) pay MSA fee of $1.08/quarter
  * Grad students fees make up 20% of the MSA Forum budget

## Resolution

The Council of Graduate Students offers the following resolution: "Resolved, that the P & R Council acknowledge the Council of Graduate Students as the independent organization representing graduate students and as such recognizes its need to have balanced representation in the University Senate."

5/1/89