

UNIVERSITY OF MINNESOTA
Graduate School

Minutes of the Executive Committee
Thursday, June 9, 1966
11:45 A.M. Campus Club

Present: Professors Armand Renaud, John G. Darley, James Jezeski, Warren Loud, Wallace Russell, George Seltzer; Drs. Leslie Zieve, R. Drew Miller; Deans Thomas W. Chamberlin, Millard Gieske, Warren Ibele; Dean Francis Boddy, presiding; Mrs. Shirley McDonald, secretary.

1. Foreign Language Requirement - The Executive Committee directed its attention to the two most recent drafts containing recommendations and certain revisions in the current foreign language requirements. These reports dated May 27, 1966 and June 6, 1966, were prepared by representatives of an ad hoc committee appointed to study the subject. Professor Renaud commented on several points in the earlier report and Dean Boddy asked that the Executive Committee consider each item and option in the two statements.
 - A. Time of submission of the language declaration - The Committee reached no consensus about the establishment of a definite time by which the declaration should be filed; however students should be urged to file programs and declarations early to avoid the possibility of disapproval after languages and/or courses have been completed and that the language declaration form should be filed no later than the three-year program.
 - B. Higher proficiency in one language - There are some fields in which little or no literature exists, but competence in a foreign language is necessary in order to conduct research. Here, conversational ability and oral communication would be stressed. Professor Renaud suggested, and the committee agreed, that such proficiency would require the equivalent of three continuous years of a language at the college level. The Committee also endorsed Professor Renaud's suggestion that this option should be recommended by the departmental graduate committees since it should probably be reserved for students in special fields of interest.
 - C. Research Technique and Collateral Field - It should be stressed that the Research Technique and Collateral Field subjects would be in addition to the normal program requirements. Dean Gieske pointed out that the Collateral Field is meant to broaden the student's background in a field related to the major and/or minor and that only 9 credits would not really serve this purpose. Some discussion followed in respect to courses used for the Collateral Field and Research Technique options eventually becoming a required part of a major and minor (i.e. statistics, computer programming, etc.); however the current terminology probably takes such normal progress into account.
The Committee concluded that the current Collateral Field and Research Technique options should be retained.
 - D. Foreign Students - Dean Boddy pointed out that the recommendation set forth in the report reverses the present regulation. English has not been acceptable as a foreign language and the use of the

native tongue has been accepted if justified. The Executive Committee endorsed the recommendation modified as follows: "A student whose native language is other than English and has passed the English comprehensive test without reservation may use this to satisfy one language requirement. The student's native language cannot be used to satisfy a foreign language requirement, and he may not apply the option of a higher order of proficiency in English to satisfy the second language requirement."

No final action was taken on any of the above points. The recommendations of the Executive Committee will be referred to the ad hoc committee for further consideration.

2. Proposed Ph.D. with a Major in Biology - This proposal has been reviewed by the Medical, Biological, and Agriculture Sciences Group Committees and was discussed by the Executive Committee during the May meeting (refer to Executive Committee minutes, May 10, 1966, Item 2).

Dean Caldecott, of the College of Biological Sciences, appeared before the Committee during the June 9th discussion of the proposal. In response to a question posed by Professor Jezeski, Dean Caldecott said that the new major is not basically intended to be a program from which other specialties will arise nor is it intended to absorb existing majors such as botany, zoology, and genetics. The new major will, however, accommodate students specializing in areas (cell biology, molecular biology, ecology, etc.) which do not have existing majors. Other points covered during the May discussion were re-emphasized.

The three group committees involved recommended that the proposal be accepted. The Executive Committee VOTED unanimously that a Ph.D. with a major in Biology be established.

A copy of the proposal is filed with the permanent file of these minutes.

3. Proposed Candidate's Degree - Participants of the CIC Graduate Deans and Faculty Representatives meeting held in April of this year adopted a statement regarding a proposed intermediate graduate degree or certificate. If accepted, there will be a common use of this degree or certificate by the CIC schools.

It is apparent that there is need for recognition of achievement; an award to all Ph.D. candidates who complete all work (and pass the Ph.D. preliminary examinations) except the doctoral dissertation and final examination. It is clear that such an award would serve as a recognition to students who have reached this stage of progress toward the Ph.D. and is not to be construed as an alternative doctorate or "consolation prize."

Dean Boddy said that two aspects of the proposal need early consideration -- feasibility and usefulness and a title for the award.

Information about the proposal will be circulated to the Graduate Faculty shortly.

4. Joint Registration - A final report covering the proposed system of joint registration between the Graduate School and the General Extension Division and circulated to the Executive Committee earlier, was discussed.

The Executive Committee adopted the plan in principle and recommended that it be submitted to Dean Crawford for final action.

5. Survey of Ph.D. Candidates - A survey of Ph.D. candidates' progress was distributed to the Executive Committee. The tabulation, covering the period from fall 1962 through spring 1966, shows the number of candidates who have completed all requirements and the number still in progress. The survey is broken down by major field within group committee area.

Lack of time prevented detailed discussion, but it was noted that 58% of the entire group on continuous registration since 1962 have completed their programs and received their degrees.

Total number on continuous registration from fall 1962:	2382
Number of candidates who have completed requirements:	1379
Number of candidates still in progress:	1003

Respectfully submitted,

Shirley McDonald
Secretary

June 14, 1966

This is an excerpt from Higher Education and National Affairs.

Volume XV, number 18

'Candidate's Certificate'
To Be Awarded by Michigan
For Ph.D.-Minus-Dissertation

The University of Michigan, in the first action of its kind within the Big Ten, will issue diploma-styled certificates to 164 graduate students in August as formal recognition they have reached the stage of candidate en route to the Ph.D. degree.

Awarding of the Candidate's Certificate, as it will be called, was approved by Michigan Regents May 20. Establishment of a similar degree, designated the M. Phil., was announced May 12 by Yale University (see Bulletin, Vol. XV, No. 16).

The concept of the new Michigan degree had been approved earlier this year by the Michigan graduate school's executive board and graduate school deans and faculty representatives of the Committee on Institutional Cooperation (CIC) which includes Big Ten universities.

The Michigan executive board suggested that the candidate's major field be designated on the certificate and warned that similar degrees "must be adopted simultaneously by a sufficient number of highly reputable institutions to assure acceptance."

Graduate Dean Stephen H. Spurr said the board has under consideration future conversion of the Candidate's Certificate to the Candidate's Degree, and commented: "The Candidate's Certificate is an important first step. It is expected that similar actions by our great sister institutions will have far-reaching significance for all institutions of higher learning in this country."

Proponents of the new degree point out its importance in the growing need for excellent teachers in schools and colleges. Also, noted the graduate deans at the CIC meeting, the new degree will (1) give status and recognition to those known usually by the derisive term, "All But the Dissertation," and (2) help preserve the standards of the Ph.D. by reserving it for those who actually take the further necessary steps.

This is a proposal which is going to be widely discussed by the Graduate Faculty as early as possible, but probably not before early fall.

We would appreciate your having preliminary discussions with your own departments and advise us of any strong reactions you may get.

We will circulate any additional information we receive in connection with reactions in other institutions in the CIC.

CANDIDATE'S DEGREE

Statement adopted by participants at CIC Graduate Deans and Faculty Representatives Meeting, University of Chicago Center for Continuing Education, Tuesday, April 19, 1966. (All CIC schools except the University of Chicago were represented.)

It is proposed that the graduate deans of the CIC institutions refer to their respective graduate schools the following proposal for an intermediate graduate degree or certificate. It is recommended that the graduate faculties consider the value and feasibility of adopting such a degree. This would depend in part on the number of other institutions which granted the degree and we propose that the CIC be the mechanism by which each institution would be kept informed of other institutions' position or actions on this proposal.

PROPOSAL:

A "Candidate in Field X" degree or certificate be given to all graduate students pursuing a program for a PhD in field X when they have passed the preliminary examination for the PhD in field X. It is presumed that for each field in each institution there can be adequately defined the particular examination (or other formal evaluative process) which, if passed, would attest that the student has cleared the last major hurdle except for the dissertation and final or thesis examination required for the PhD.

COMMENTS:

It is not intended that there need be complete agreement or rigid conformity among fields or among institutions with respect to minor

differences in rules with respect to such matters, for example, as whether or not all course work of every type be completed, or all the language requirements or alternatives to these requirements be satisfied, before the student is eligible to take the defined preliminary examination. The purpose is to identify the most appropriate point in the formal steps toward a PhD, where successful completion would indicate that the only major steps to the PhD that remain are the completion of an acceptable dissertation and its successful defense by final examination or otherwise.

Although it is recognized that there has been continuing discussion of the possible need for new types of degrees at the doctoral level, it should be understood that the Candidate's degree or certificate is not intended as an alternative to the Ph.D. degree, nor is it intended for a set of students with different aspirations at the outset of their graduate careers. Rather, the Candidate degree or certificate is a positive certification of achievement at a level beyond that of the master's degree and should be granted to all aspirants to the Ph.D. Thus, if for any reason, including a change in his professional interests, the pre-doctoral candidate does not go on to the completion of his dissertation, the Candidate's degree would represent a formal recognition of his level of educational achievement, and his having completed an advanced stage of a program for the Ph.D.

PROPOSAL FOR A PH.D. IN BIOLOGY

10 copies for
DeZieroe's comm.
sent

Introduction

At the present time graduate work in the biological sciences at the University of Minnesota is offered only through traditionally-oriented departments. Much of the future of biology, on the other hand, lies in ill-defined interdisciplinary areas such as Molecular Biology, Cell Biology, Developmental Biology, Ecology and Evolution and Systematics which do not readily fit into any one department. There is thus clearly a need for new graduate offerings separate from those of the traditional departments. Recognizing this, the CBS is attempting to establish a home for programs in the above-mentioned interdisciplinary areas. Although in most cases the core faculty in these programs will be drawn from the faculty of CBS, every effort is being made to include faculty from the entire University. Indeed, without these faculty the programs will fail.

If such programs are to be implemented, a home for them must be found within the Graduate School. Two possible approaches are apparent. One approach would be to attempt to set up a separate graduate major for each program. This seems undesirable for two reasons. First, we cannot at the moment be certain which of the programs will be viable and which will merge. Although every one of these programs exists somewhere in the United States, they, in reality, are not all sharply distinct. Second, because of the above, we would rather not have to constantly propose new majors and the abandonment of previously approved majors to the Graduate School. The second alternative, the one preferred by the CBS Advisory Committee and by the Biological Group Committee of the Graduate School, is to establish only one new graduate major: Biology.

In order to be certain the student in the graduate biology major is well trained in the field of biology as a whole, we propose that he pass a comprehensive examination in the field. This examination will be based on, and administered by, the faculty teaching the new undergraduate core curriculum in biology. The latter is a three year sequence of courses covering the entire field of biological sciences in an interdisciplinary manner. A copy of the course descriptions and a diagram indicating how they build one upon the other are enclosed. Any student able to demonstrate competence in all of these areas deserves to be called a biologist. Each program will add to this core competence the requirement for competence in the specialization covered by the program as well as competence in related areas of biology and/or the mathematical and physical sciences.

The initial graduate faculty for the biology major will be recommended to the Graduate School by the chairmen of the various programs. As additional faculty members prove to be active in one of the programs, they too will be nominated for membership.

It is hoped that the following descriptive material will enable the Executive Committee to render a decision at the earliest possible time so that implementation of the new degree can be announced.

Graduate Work in Biology Without Departmental Designation

Graduate Degrees in Biology

This major option is proposed to accommodate students in programs (cell biology, ecology, molecular biology, etc.) and others with interests not covered by present available major options (botany, biochemistry, genetics and zoology). The requirements for this major should be kept flexible enough to be met by any substantial graduate study program in the biology area.

General Requirements

All graduate students who earn an advanced degree in biology must demonstrate a competence in the field as a whole at approximately the level of the undergraduate core curriculum. The criterion will be a comprehensive examination in biology drawn up to include one thirty minute question (or equivalent) relating to each of the courses in the undergraduate core curriculum beyond Biology 49. This examination will be prepared and administered by an ad hoc committee of faculty members engaged in teaching the biology core courses. Students who elect the biology major will write the comprehensive examination at the beginning of their graduate training so that the results may be used as a basis for evaluation and counsel. Those who perform well will not be required to write the examination again. Others will retake the examination when they have had the opportunity to correct earlier deficiencies.

Foreign language requirements will be as follows. (1) For the M.S. degree one foreign language, (2) for the Ph.D. degree two foreign languages or one language plus a collateral field or a research technique as defined in the Graduate School Bulletin.

Admission

If a student seeks admission to a regularly established program, his application should be sent by the Graduate School to the program director. Each program will devise procedures for handling such applications.

If a student wants a specialization for which no formal program exists, his application should be sent either to his presumptive advisor or to the director of graduate study for the graduate degrees in biology.

Program Planning

If no approved specialization suitable for the student exists, the student's advisor in consultation with the director of graduate studies or some other member of the faculty appointed by him, will plan the student's program.

A student in an approved program will meet requirements established by that program.

Administration

A director of graduate studies for the graduate degrees in biology shall be appointed. A major responsibility will be to provide or arrange for proper and adequate counseling of students who elect the biology major. He will in addition perform the miscellaneous duties of a departmental director of graduate studies.

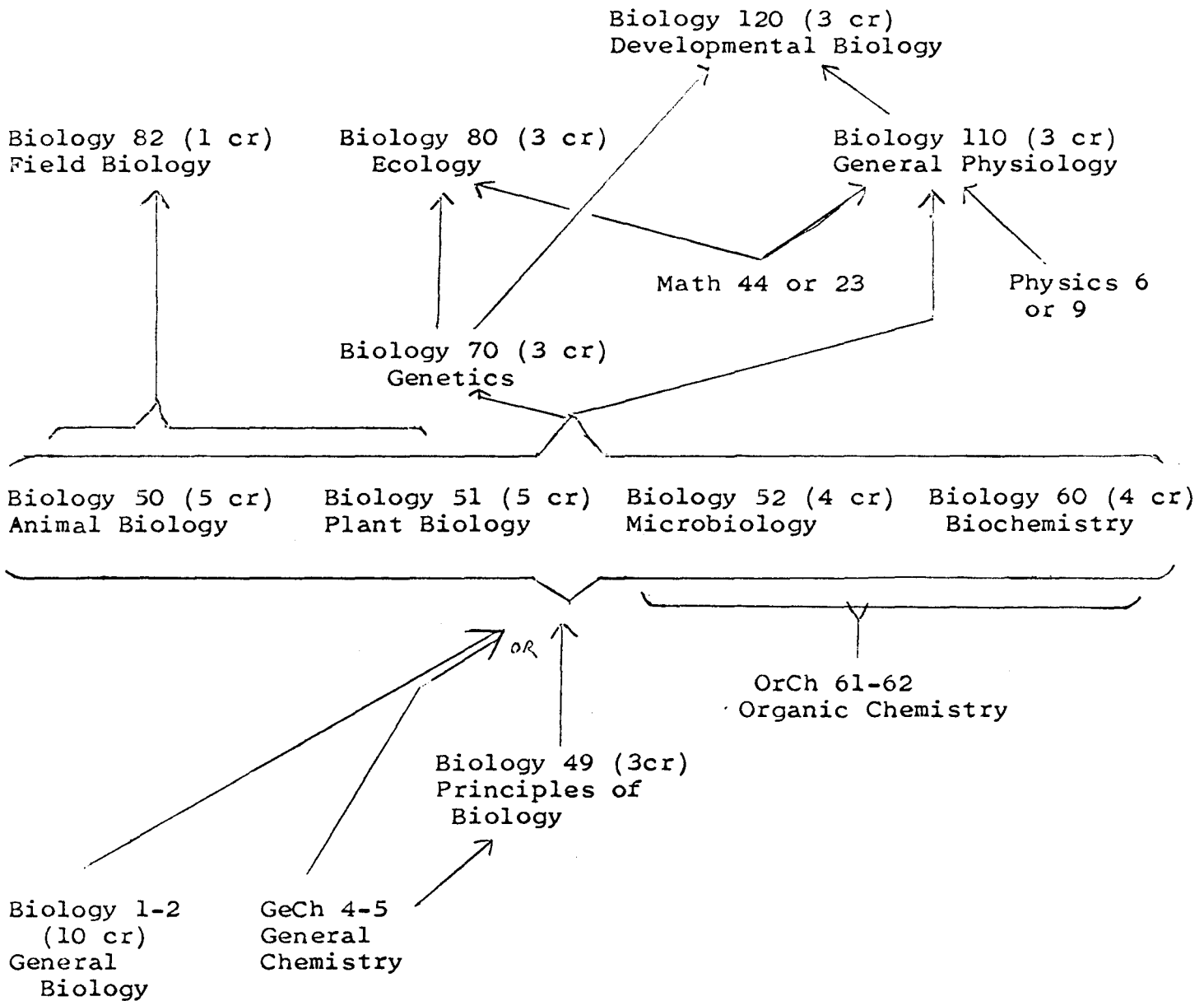
Approval of Programs of Specialization

The Biological Group Committee shall have as one of its duties the responsibility of recommending to the Dean of the Graduate School approval of new formal programs administered under this degree.

April 22, 1966

The Core Curriculum

(plus laboratory in three biology courses beyond 50-51-52)



Basic Requirements for the B.S. in Biology
College of Biological Sciences

January, 1966

- I. Communication, Language, Symbolic Systems
- A. English Communication Skills: 9 credits or exemption 0-9
- B. Foreign Language: The completion of 15 credits in one of the following languages: French, German or Russian, or demonstration of equivalent proficiency as determined by the appropriate language department. 0-15
- C. Mathematics: Mathematics through integral calculus (See also II C) 10-20
- II. The Physical and Biological Sciences
- A. The Physical Universe
- General Chemistry 4-5-6 or equiv¹ 14
Organic Chemistry 61-62 10
General Physics 4-5-6 or 7-8-9² 15
- B. The Biological Universe
- Biology 49: Principles of Biology. An introduction to biology, including the cell theory, energy relations, reproduction, inheritance, and evolution. (Prereq GeCh 5 or 25; Biol 2) 3
- Biology 50: Animal Biology. A survey of the types of animals, with emphasis on the varied ways in which different animals have solved similar problems. (Prereq Biol 49 or 2 and GeCh 6 or equiv) 5
- Biology 51: Plant Biology. An introduction to the growth, development and function of the root, stem and leaf; the flowering process; origin and diversity of plant life; classification, nomenclature, structure, life histories and biology of representative major divisions of the plant kingdom. (Prereq Biol 49 or 2 and GeCh 6 or equiv) 5
- Biology 52: Microbiology. Lectures and laboratory exercises in taxonomy, anatomy, physiology, biochemistry and ecology of microbes. Emphasis is on the fundamental properties of bacteria. Lectures also include descriptions of the major groups of the bacteria as well as of the remaining protista. (Prereq OrCh 62; Biol 49 or 2; MicB 153) 4

Biology 60: Biochemistry. Introduction to the biochemistry and biophysics of cells with emphasis on enzyme catalysis, cellular energetics, biosynthesis of cellular constituents, and cellular regulatory mechanisms. (Prereq OrCh 62 and Biol 49 or 2)	4
Biology 61:* Laboratory in Biochemistry. (1 cr; prereq 60 or 41)	
Biology 70: Genetics. Introduction to the principles and mechanisms of heredity, with emphasis on the structure and functioning of the genetic material and its relation to breeding behavior, development and population structure in procaryotic and eucaryotic organisms. (Prereq Biol 50, 51, 52, and 60)	3
Biology 71:* Laboratory in Genetics. (2 cr; prereq 70 or Gen 66 or 41)	
Biology 80: Ecology. Interrelations of environmental influences and individual organisms; population growth and regulation; the nature, organization and development of ecological systems. The role of modern man in the biosphere. (Prereq Math 44 or 23, Biol 70, or #)	3
Biology 81:* Laboratory in Ecology. (1 cr; prereq Biol 80 or 41)	
Biology 82: Field Biology. Field trips stressing local habitat types and instruments used in ecological research. (Prereq Biol 50 and 51)	1
Biology 110: General Physiology. A quantitative approach to the study of processes occurring in living organisms, with emphasis on the comparative physiology of living systems. (Prereq Math 44 or 23, Biol 50, 51, 52, 60, and Physics 9 or equiv)	3
Biology 111:* Laboratory in General Physiology. (2 cr; prereq 110 or 41)	
Biology 120: Developmental Biology. The study of developing systems and of the control mechanisms of development, from the molecule to the organism. (Prereq Biol 70 and 110)	3
Biology 121:* Laboratory in Developmental Biology. (2 cr; prereq 120 or 41)	
Laboratory in three biology courses	4-6
 C. Physical, Biological and Mathematical Sciences	
Twenty additional upper division credits in the mathematical, biological, and physical sciences	20

* Optional laboratories--see laboratory requirement.

III. Artistic Expression: Completion of 9 credits in one of the two following areas.

A. Literature

B. The Arts

9

IV. Man and Society: Completion of 18 credits from the following areas.

A. The analysis of human behavior

B. The analysis of social, economic and political institutions

C. The development of civilization: historical and philosophical studies

18

Uncommitted electives

10-46

180

¹ Students with sufficient preparation in high school mathematics and chemistry should be advised to take GeCh 24-25 and AnCh 46-47.

² Students should be encouraged to take the 7-8-9 sequence to take advantage of their preparation in mathematics.