

HAVERFORD COLLEGE CATALOG 1977-1978

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Statement of Purpose for Haverford College

Haverford College seeks to prepare men and women for lives of service, responsibility, creativity, and joy, both during and after college.

The College shares with other liberal arts colleges of academic excellence:

- a commitment to open inquiry by both its students and faculty, combined with rigorous appraisal and use of the results of that inquiry
- an emphasis on a broad education in the natural and social sciences, the humanities, and the arts, combined with strong competence in at least one field of the student's choosing
- an educational program that aims more at preparing persons to think and act clearly, boldly, and humanely in whatever life work they choose than at training for specific professional careers.

The College's distinctive character comes from its striving for:

- candor, simplicity, joy, and moral integrity in the whole of college life in keeping with Haverford's Quaker traditions*
- a harmony for each person among his or her intellectual, physical, social, esthetic, and spiritual concerns
- a creative use of smallness that places students in the closest contact with dedicated scholars in the pursuit of knowledge
- a sense of community marked by a lasting concern of one person for another and by shared responsibilities for helping the College achieve its highest aims
- a system of responsible self-government in the student body and in the faculty
- a balance for students and faculty between disciplined involvement in the world of action and detachment to reflect on new and old knowledge alike.

In sum, the College seeks to be measured, above all, by the uses to which its students, graduates, and faculty put their knowledge, their humanity, their initiative, and their individuality.

* In 1976 the Board of Managers adopted a detailed reassessment of the College's Quaker foundations which says, in part, "A prime focus of Quaker education is on the value and uniqueness of each individual student, where each is seen worthy of patient personal attention, where each contributes to, and draws sustenance from, the group in distinctive ways. The College must take care to ensure that its students continue to feel part of a small and caring community . . . Haverford is different from other liberal arts colleges of academic distinction—a difference that is continually confirmed in the dedication of its faculty and staff and in the extraordinary loyalty of its alumni. It is expressed in the openness and candor of discussions on budgets, in the close relationships that develop among faculty, administration, staff and students, in the community's response to human crises, in its caring for the land and trees. It is above all here, in the daily round of college life, that Haverford nurtures the Quaker roots of its 'invisible' structures."

History

Haverford College, the first established by the Religious Society of Friends, originally called the Haverford School Association, was founded in 1833 by a group of New York and Philadelphia Quakers. For \$17,865 they purchased the 198½-acre farm of Rees Thomas in Haverford Township “near the ten-mile stone” from Philadelphia, built Founders Hall upon it, and farmed much of what is now campus. Here a faculty of seven administered to 21 Quaker boys a “guarded education . . . an enlarged and liberal system of instruction” comprising mathematics, natural philosophy, moral philosophy, Latin and Greek language and literature, and “English literature, etc.” for an estimated room-board-tuition fee of \$90 annually. The College is now easily reached by Conrail (Penn Central) suburban trains, by the Septa- Red Arrow interurban line, and by car from the Pennsylvania Turnpike (Norristown or Valley Forge exits), Schuylkill Expressway (Gladwyne or Gulph Mills exits), and U.S. 30 (Lancaster Ave.) which passes the College gate.

The overall Haverford College campus now includes 226 acres. From the beginning the Board of Managers has continually recognized the natural beauty of the campus as a valued special asset; an English gardener laid out the original landscaping which still remains basic. The College farm has long ago ceased operation and the neighborhood has altered from rural to suburban, giving the College some of the aspects of an open public park. An Arboretum and Nature Walk were personally created by, and named for, Edward Woolman, Class of '93; the “Campus Arboretum Association of Haverford College” is composed of neighbors and campus residents permanently organized to ensure the continued cultivation and oversight of Haverford’s outdoors; and new college construction is planned so as not to interfere with plantings of trees and shrubs.

A detailed history of the College prepared by a committee of the Alumni Association appeared in 1892; subsequently *The Story of a Small College* by President Isaac Sharpless (1918) and *Haverford College, A History and Interpretation* by Professor Rufus M. Jones have traced developments to 1933.

A persistent theme in the College’s evolution since those earliest days has been an increasing “commitment to diversity,” as it is now called, in the curricular offerings and in the composition of the faculty and student bodies. During the period 1845-48 when the College suspended operation for financial reasons, the charter was amended to permit the enrollment of non-Quaker students. In 1856 Haverford became a college granting the Bachelor’s degree; the first honorary Master’s degree was conferred in 1858; the first

honorary Doctorate was conferred in 1876, and the first earned Master's degree was granted in 1885. The Thomas Wistar Brown Graduate School in Philosophy, Biblical Literature, History, Sociology and Economics, which existed from 1917 to 1927, was open to both men and women candidates for the Master's degree. In 1922 the first of a number of black students was admitted. At about the same time the geographical composition of the student body was diversifying from regional to national and international. During and since World War II, under a variety of informal arrangements and formal programs Haverford has at first permitted and subsequently encouraged the attendance of women, especially from Bryn Mawr College as noted on p. 38 below and has occasionally granted earned Bachelor's and Master's degrees to women. In 1976-77 the faculty consisted of 103 full- and part-time men and women, and the student body numbered 831. Beginning in 1977-78 women candidates for the Bachelor's degree are admitted as transfer students on the same basis as men transfers.

Evolution over nearly one-and-a-half centuries has not been limited to broadening the curriculum, students and faculty. Some 70 major and minor buildings described below or indicated on the map at the end of the catalog have been constructed in a variety of architectural styles reflecting the tastes of their times, and many now serve purposes other than those for which they were originally planned. Most of the faculty as well as most of the students live on or near the campus with consequent opportunity for social as well as classroom contacts.

On-campus developments combine with many off-campus influences to produce a kaleidoscope of changing students organizations, interests, traditions and fads which emerge and disappear at Haverford as they do on all college campuses.

However, even a brief historical review should not omit mention of two permanent policies.

(1) Haverford takes satisfaction in its general statements on the civil rights, liberties and responsibilities of the members of the college community as detailed in the *Faculty Handbook* and the *Students' Guide* and in having, on more than one specific occasion, defended these rights against public opinion and governmental regulation.

(2) In a different area, Haverford takes satisfaction in having inaugurated for the first time anywhere the practice of self-scheduled midyear and final examinations and the assumption of collective student responsibility that this involves.*

* Self-scheduled examinations were proposed by Kent G. Smith, Class of '63, when a junior. In substance, under Haverford's Honor System students take their unsupervised examinations at any time during the periods prescribed in the calendar. For further details see W. E. Cadbury, *School and Society*, Feb. 5, 1966, pp. 68-70.

Resources

LIBRARY: From the beginning the Library has been planned and developed to provide the intellectual resources needed to sustain a liberal arts academic curriculum. The earliest College building designed for library purposes was built in 1864 and called Alumni Hall; in 1952 this wing was handsomely renovated and renamed in honor of William Pyle Philips, Class of 1902, bibliophile and benefactor of the College. At various times further wings, stacks, and office areas collectively named the Thomas Wistar Brown Library have been added to keep pace with an expanding curriculum and accelerated rates of publication. In 1968 a large new library incorporating its predecessor was built through the initiative of James P. Magill, Class of 1907, and named in his honor; at the same time the T. Wistar Brown Library was thoroughly modernized and air-conditioned.

Over the years the faculty has selected most of the volumes, but many others come through gift. Open shelves and free access to most books continue as library policy. The library is open to students, faculty, Library Associates and, with some restrictions, to the wider public for nearly 100 hours per week during the academic year.

The Library now holds about 345,000 volumes and receives some 1,495 periodicals. It has about 73,000 sq. ft. of floor space, six levels, shelf space for 500,000 volumes, seating capacity for 500 persons, a fireproof vault, with controlled humidity and temperature, for rare books and manuscripts, and 260 study carrels of which 30 are enclosed and reserved for faculty and the remainder, of which 24 are soundproof for typewriting, are for students.

Special collections and work areas in the Library include the following:

1. Special Collections

The Treasure Room, provided through the generosity of Morris E. Leeds, Class of 1888 and a former chairman of the Board of Managers, contains the College's special collections. Staff offices and research facilities for visiting scholars are provided in the Treasure Room and Borton Wing.

The Borton Wing, named for Hugh Borton, Class of 1926, former President of Haverford College, contains the **Harvey Peace Research Room** and the vault for rare books and manuscripts.

The Philips Collection of rare books and manuscripts, mostly of the Renaissance period, includes among its outstanding items the first editions of Dante, Copernicus, Spenser, the King James Bible, Milton, Newton and the four folios of Shakespeare.

The Roberts Collection contains more than 20,000 manuscript items such as a complete set of the signers of the Declaration of Independence and letters of famous authors, statesmen, educators, artists, scientists, ecclesiastics and monarchs, as well as valuable papers on religious, political and military history.

The Harris Collection has more than 60 Hebrew, Latin, Arabic, Syriac and Ethiopian rolls and codices collected by J. Rendel Harris.

The Morley Collection comprises about 1,000 letters and memoranda selected by the late author, Christopher Morley, from his correspondence files, including autographed letters from more than 100 contemporary authors.

The Quaker Collection began in 1867 when the Board of Managers decided to gather "an important reference library, especially for works and manuscripts relating to our own Religious Society." At that time, the library already contained many Quaker books and manuscripts, including the "Letters and Papers of William Penn."

Today, the Quaker Collection is a major repository for both printed and manuscript material about the Society of Friends. Its 29,000 titles include more than 4,000 volumes printed before 1700. The nucleus of these early works is the William H. Jenks Collection of Friends' Tracts, containing 1,600 separately bound titles, mostly from the 17th century.

There are several thousand pamphlets and serials in the nearly complete set of bound volumes of Quaker periodicals, and there is a magnificent collection of Yearly Meeting minutes. The Quaker Collection's 150,000 manuscripts, documents, maps and pictures include the journals of about 700 important Friends, the papers of leading Quaker families, Meeting records, archives of Quaker organizations, and material on Friends' relationships with Indians.

Through gifts and purchases, the Quaker Collection is constantly growing. Especially welcome are gifts of family papers, books and other materials related to the history of Friends. On request, the librarian will send a brochure giving more information on the Quaker Collection.

The Rufus M. Jones Collection contains 1,360 books and pamphlets on mysticism published between the 15th century and the present.

The Tobias Collection includes practically the complete writings of Quaker philosopher Rufus Jones. There are 325 separate volumes and eight boxes of pamphlets and extracts. Jones's personal papers, also kept at Haverford, generally are available to scholars.

2. Philips Wing

The Philips Wing was renovated in 1952 and named in honor of one of Haverford's principal benefactors, William Pyle Philips, Class of 1902. This wing is used as a special reading room for semi-rare books and periodicals. It contains the following:

The Lockwood Collection of some 3,000 volumes of works by and about Italian Humanists collected and bequeathed to Haverford by Dean P. Lockwood, professor of Latin and librarian from 1920 to 1949.

The Rufus M. Jones Study, a reconstruction of a room in Rufus Jones's home, containing his books and furniture. Jones, Class of 1885, a noted Quaker philosopher and teacher, spent almost 60 years at Haverford as student and professor.

The C. Christopher Morris Cricket Library and Collection, a handsome room housing material on the history of cricket, with special emphasis on the sport at Haverford College and in the Philadelphia area.

The Maxfield Parrish Alcove, a collection of books on the art of illustration, as well as examples of handsomely illustrated books, especially those of Maxfield Parrish, member of the Class of 1892.

3. Other Special Areas

The Microforms Room is equipped with microfilm, microfiche, and microcard readers plus microfilm files of *The New York Times*, the *Philadelphia Public Ledger*, *Landmarks of Science*, and other micro-materials.

The Hires Room, named for Harrison Hires, Class of 1910, and Mrs. Hires, serves both as a seminar room and a listening room for cassette tapes.

The Gummere-Morley Room, a browsing room, is in memory of Professors F. B. Gummere, Class of 1872, and Frank Morley, Sr.

The Christopher Morley Alcove serves as a browsing area and contains exhibits and collections of the writings of Christopher Morley, Class of 1910.

The Strawbridge Seminar Room is used for seminars and committee meetings.

The Crawford Mezzanine provides writing and study tables for 44 students. It honors Alfred R. Crawford, Class of 1931, former vice president of the College.

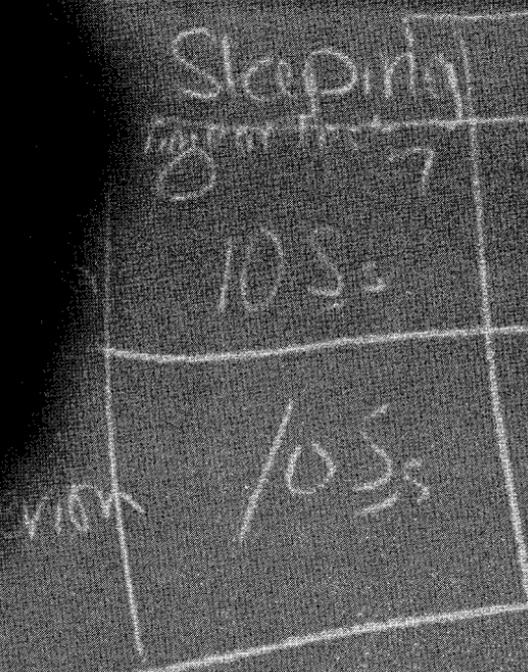
The Press Room, with a Washington flat-bed and a rotary job press, is available to students and friends of the College, informally organized as the Haverford Printers, interested in letterpress printing by hand.

SECTION

2

THE PROGRAM

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Awake

Loss

Loss



of \$100, non-refundable but applicable to the residence fee, is due from returning students on a date in the preceding second semester (to be announced) and from entering students on their acceptance of admission. There is also a Students Association fee of \$70 per year. These fees—tuition, residence and Students Association (but excluding the College's optional Accident and Health Insurance Plan, for which see p. 150)—total \$6,350 per year.

The residence fee covers board-and-room charges when College is in session. This includes: heat, electric light, weekly housekeeping service, and the use of bedroom furniture, including bureau, table, chair and a bed. Students supply any other desired furniture, plus blankets, towels, and bed-linen.

The Students Association fee covers the student activities fee and admission to the art series of entertainment and cultural events.

A student carrying two or more credits on campus is charged full tuition which is now \$4,330 for the academic year (see Course Load, p. 29).

Students are charged full tuition for each of the first eight semesters they are in attendance at the College or until thirty-two credits have been earned in the seven-semester program, or thirty credits have been earned in a six-semester program. Six- and seven-semester programs provide the means for students to reduce both the number of semesters and the financial costs required for a Haverford degree. (See p. 35.) Students who finish seven semesters without completing all degree requirements will be required to enroll for a final semester at full tuition even if the number of credits needed is only one or two.

A student carrying only **Non-Collegiate Supervised Academic Work** (see p. 34) referred to as "off campus" or "O.C. credits" is charged for one course at the special student rate of \$550 regardless of the number of O.C. credits carried in that semester.

A student carrying one or more on-campus credits and one or more O.C. credits is charged full tuition for that semester.

A non-resident student carrying one or more independent study credits is charged for each credit at the rate for special students (\$550 per credit).

The vacation recesses scheduled during the school year are fall, midyear (Christmas), and spring. During the fall and spring recesses the residence halls are open but the Dining Center is closed. All residence and food facilities are closed during the midyear recess.

A \$150 deposit is required, payable in full before the beginning of the first semester, to cover the cost of books and any other incidental charges that may arise during the school year. On January 16 this deposit is brought up to \$150 by billing the student for charges already made against it, and on May 15 each

student's deposit must have a balance adequate to cover all final charges. If this bill, or any other indebtedness, is not paid by the end of the semester, no official transcript will be issued until all outstanding charges have been paid. Any unspent balance is refunded at the end of the academic year.

Bills for the following semester's tuition, board, room, Students Association fee, and deposit are rendered August 15 and January 16. They must be paid in full before the beginning of the semester and, to avoid last minute congestion, preferably by mail in advance. Students whose fees are not paid are not considered as enrolled at the College.

Freshman and other new students are charged a one-time fee to cover the cost of their orientation period, called *Customs Week*.

The College makes no reduction or refund of the tuition charge after the first two weeks of any semester; but if a student withdraws before the completion of the first two weeks, tuition is refunded in full. In case of withdrawal or absence because of illness, a full refund of the room-and-board fee cannot be made because overhead expenses continue. However, if a student withdraws more than four weeks before the end of a semester, or is absent because of illness for four weeks or more, a partial refund of the room-and-board fee is made in the amount of \$25 for each week of absence. The Students Association fee is not refunded for any reason.

COLLEGE RESPONSIBILITY: The College is not responsible for loss because of fire, theft, or any other cause. For regulations governing accident and health insurance see p. 150. Information on all types of insurance is available at the Business Office.

MONTHLY PAYMENTS: Students who prefer to pay tuition and other fees in monthly installments may do so through the Girard Bank. Details of this plan, including charges of financing, may be obtained from the Business Office.

Financial Aid

The financial aid program principally rests upon a large number of endowed scholarships created over more than a century by a wide variety of persons with faith in youth and in Haverford College, often to memorialize or honor a member of the College community. Where appropriate, these have been combined into a single fund from which grants are made and to which additions are welcomed. For detailed statement of the names, history and amounts of the individual endowments, see the annual reports of the Treasurer of the Corporation.

Financial aid is administered by a committee chaired by the Director of Financial Aid and including the Director of Admissions, the Dean of the College, and the Dean of Student Affairs. Aid is awarded on the basis of financial need to those students who, without such aid, would be unable to attend the College. Students are expected to exercise diligence and economy in handling their financial affairs.

Although no aid is awarded for more than one year, it is normal practice to continue to meet a student's financial need, as reassessed annually, provided the College record is satisfactory.

In meeting a student's financial need, aid is usually awarded in a combination of (1) campus employment, (2) long-term loan, and (3) grant.

Candidates for freshman or transfer admission who intend to apply for financial aid should so indicate by marking the appropriate space on the application for admission and must file a family financial statement with the appropriate office of the College Scholarship Service. The suggested filing deadlines are October 15 for Early Decision freshman candidates and for January transfer candidates, and January 16 for regular freshman and September transfer candidates.

A student who is enrolled at the College and who wishes to apply for aid must file an application with the Director of Financial Aid by April 20 preceding the year for which aid is requested. By the same date, the student must file a family financial statement with the appropriate regional office of the College Scholarship Service.

Forms and information are available from the Director.

Aid is not granted to a student whose previous College bill has not been paid in full.

Curriculum

Haverford is a liberal arts college. Its curriculum is designed to develop in its students the capacity to learn and to understand, to make sound and thoughtful judgments. The requirements for the degree encourage the exercise of these skills in each of the broad fields of human knowledge, and a fuller development of them in a single field of concentration.

GUIDELINES FOR LIBERAL EDUCATION: In its original meaning "liberal" was applied to those arts and sciences that were considered worthy of free people, as opposed to "servile" or "mechanical" disciplines. "Liberal education" has persisted as an ideal which is not only worthy of free people but is the means of liberating and freeing them by providing them with an

understanding and appreciation of the tradition that has shaped them and the social and natural world in which they live.

The purpose of these guidelines is to help students in planning a course of study at Haverford. Students should realize that there are many different types of educational experiences that can take place at an institution such as Haverford where a great deal of freedom and responsibility in planning a course of study rests upon the individual. It is expected that, with the help of their advisors, the students will plan a course which will be designed to meet particular interests, educational background, and intellectual strengths and weaknesses. While there are disagreements about the detailed definition of a liberal education, there is a consensus concerning its general shape.

1. **Written and oral communication.** One of the most difficult and important skills is the art of writing and speaking lucidly and coherently. Students will discover that there are few areas of human knowledge that they can explore in depth without perfecting an ability in this area. These skills are stressed in the program of Freshman Seminars and the Freshman Writing Seminar. Students who are weak in the skills of verbal communication are well advised to take courses which pay greater attention to training in this art.

2. **Foreign language.** The mastery of a foreign language, ancient or modern, not only deepens an appreciation of one's own language but increases sensitivity and understanding of the nature of language and enables the student to gain a far more intimate understanding of different cultures. Further, since many Haverford students continue their education in graduate school, they ought to know that many graduate programs require a reading knowledge of at least two foreign languages.

All students are required to take at least one year of foreign language study at Haverford unless they can satisfy their language requirement by examination. But a student who starts the study of a foreign language at Haverford should realize that a single year of study is insufficient to achieve minimal competence in reading or speaking. While not required, all students are strongly advised to plan to take two or more years of formal language study.

3. **Distribution requirements: dimensions of liberal education.** In addition to the writing, speaking, and foreign language requirements noted above, beginning with the Class of 1979 students are required to have course experience in each of seven areas of the curriculum. Courses are coded with regard to the major areas or dimensions of academic experience they offer. The coding system assigns three points to each course. These points may be assigned to one or two of the seven dimensions represented in the code.

Students are required to create programs which afford a minimum of three points along each dimension, which requirement can be met in a variety of ways: either by a single course, of which all the points are coded on that dimension; or by three courses, each of which carries one point along the dimension; or by other combinations that yield the required total of three points.

Descriptions of the distribution code. Each of the seven dimensions is assigned a code letter as follows:

N—Natural Science

A—Quantitative or Symbolic Analysis

H—History

V—Being and Value

S—Social and Behavioral Science

L—Aesthetics and Literature

E—Laboratory, Field or Artistic Experience

For illustration, take the example: English 265a American Studies before 1860 (S-2, L-1). This indicates that the course has been assigned two dimension points in Social and Behavioral Science and one in Aesthetics and Literature (which means that the students would need, respectively, one and two more points to meet the minimum requirements in those two dimensions). It is a good example in that it shows that the required dimensions cut across traditional departmental and divisional boundaries.

Dimension descriptions. The full description of a dimension requires an examination of the courses receiving points for the dimension in question.

Natural Science. This dimension is usually found in courses offered by the departments of Astronomy, Biology, Chemistry, Geology (Bryn Mawr College), Psychology, and Physics.

It includes the observation and systematic study of natural phenomena, understanding of basic methods and concepts used to select, produce, relate and predict these phenomena, and some acquaintance with the historical and intellectual processes which have woven these into coherent patterns.

Quantitative or Symbolic Analysis. This dimension is often found in courses in Mathematics, Physics, Chemistry, Anthropology, Linguistics, and Logic.

It consists of the study and application of mathematical and other formal symbol systems, both numerical and non-numerical. It includes the development of syntactic skills for symbol manipulation and calculation, and some grasp of how such systems are created, utilized, extended and evaluated.

History. This dimension is often found in courses in History, Philosophy, Political Science, Religion, Sociology, and Anthropology.

It is concerned with the complete context of life, social organization, ideas, artifacts, art, beliefs, etc., of times removed from our own. In addition to creating an understanding of past contexts, it also treats the ways in which these contexts change over time. However, mere concern with sequences of events ordered in time is not sufficient to lead to coding along this dimension. To be included, events must be studied as parts of the broader context in which they occur.

Being and Value. This dimension is typically encountered in courses in Philosophy, Religion, Political Science, Sociology, History, and Literature.

It is concerned with the significance and evaluation of what is or ought to be, as these questions are discussed in metaphysics, ethics, epistemology, theology, and political philosophy.

Social and Behavioral Science. This dimension is often found in courses in Anthropology, Economics, Political Science, Psychology, Sociology and sometimes Biology. It includes the application of the scientific method to the study of human behavior and the comparative study of human actions, institutions and their material products. It also studies the conditions and consequences of human action for individuals, groups and social systems.

Aesthetics and Literature. This dimension is usually found in courses in Literature, Fine Arts, Music and, sometimes, in Philosophy, History, Anthropology or Religion. It treats the problems presented by works of creative imagination in literature and the arts and the responses elicited by these works. It involves not only an appreciation of the aesthetic and expressive aspects of creative work, but also learning how to deal critically and discriminatingly with such works.

Laboratory, Field, or Artistic Experience. This dimension is found in certain courses in departments including Astronomy, Biology, Chemistry, Economics, Fine Arts, Music, Physics, Sociology and Anthropology.

Its distinguishing feature is the interplay of concepts and theory with direct activity or experience, whether in the laboratory, field or studio. It requires that activities be undertaken in a context of disciplined study and that they be subject to critical analysis and evaluation.

FRESHMAN PROGRAM: Since the College requires that each student expose himself to areas of knowledge and ways of thinking which may be new to him and which may radically change his ideas about eventual specialization, and since it is important that this diversified experience be gained early, the faculty strongly recommends that none of the courses in each of the freshman semesters be in the same department. (For this purpose, Greek and Latin are considered as separate.) Similarly, sophomores normally will

not be permitted to take more than two courses simultaneously in any one department. The Committee on Student Standing and Programs exercises general supervision over unusual combinations of courses.

Each freshman should expect to take a Freshman Seminar and a Freshman Writing Seminar. In most cases the teacher of the fall semester course, either Freshman Seminar or Freshman Writing Seminar, will also be the student's advisor for his freshman year. A tentative selection of courses is accomplished by the freshman and his advisor during the orientation (Customs) period. The courses open to freshmen are generally numbered below 200, but if he is qualified, a freshman may be permitted by the Department concerned and by the Dean of the College to take more advanced courses. He will be helped to plan a course of study for his first four semesters, taking into account the "Guidelines for Liberal Education" and the distribution requirements. Every effort is made by the advisor and others (including the Dean of the College, the Dean of Student Affairs, the counselors, admissions officers, and Customs Committee Members) to facilitate mutual adaptation between the freshman and the College. It is anticipated that freshmen will "try out" a variety of courses in the first few days of classes, and that considerable course shifting will occur.

Freshman seminars. The Freshman Seminar Program and the Freshman Writing Seminar are designed to give the entering student a uniquely stimulating educational combination at the beginning of his college education. For details see p. 82.

BACHELOR'S DEGREE: To graduate from Haverford College students must complete successfully the equivalent of four years of academic work, a minimum of 32 semester credits (see below) and six quarters of work in Physical Education taken in the first two years.

Students must include among the 32 credits required for the degree, one Freshman Seminar and one Freshman Writing Seminar or the equivalent and must satisfy the foreign language requirement (see below).

To avoid undue specialization, the College requires that 19 credits be passed in departments outside the major department. Classics majors and students with double majors automatically satisfy this requirement.

A course cannot be used to satisfy a major department requirement for the degree if the grade is below 65.

Degree candidates must also meet the standards of their major department in work designed to provide, in the senior year, a synthesis and evaluation of the work in the department.

Students are accountable to themselves and to the College, through the Committee on Student Standing and Programs, for the use to which they put

their talents and the resources of the College. This means that students who are passing may be dropped and ones who are failing may be permitted to continue. Although they may be permitted to continue at the College by the Committee on Student Standing and Programs, students who fail to pass all of their credits will be considered academically deficient, as will those who barely pass their credits in any semester beginning with the sophomore year.

Through the Academic Flexibility Program described on p. 33 students may introduce variations in programs to meet their particular needs.

The degree conferred upon candidates meeting the requirements is that of Bachelor of Arts or, upon request from students majoring in the natural sciences or mathematics, Bachelor of Science.

Residence requirement. Students, other than transfer students, may arrange for reduced programs of six or seven semesters and, by using up to four credits of approved advanced placement or summer school work, may arrange their schedules so that they will need to carry only the normal load of four credits in most semesters. In addition, they may study away at another American college or university or abroad for a semester or a year. (See pp. 39, 40.) But any combination of options will need, for approval, to provide for six semesters in residence and 24 Haverford credits. Decisions about the application of the residence and credit requirements to transfer students are made by the Dean of the College.

Course load. A normal semester course load is considered to be four credits. To facilitate student involvement in non-academic activity, however, students may arrange their programs with some flexibility. With the consent of their advisors they may enroll for five credits in a given semester. To carry more than five credits they must secure the approval of the Dean of the College. Or students may be permitted to enroll for as few as two credits in a semester, provided they are making normal progress toward completion of 32 credits in four years, either by having accumulated extra credits or by evidencing, to the Committee on Student Standing and Programs, an ability to make up a deficit in the future. (Up to four credits of approved Advanced Placement or summer school courses may be counted as credit for graduation.) Advisors will approve more or less than the normal four-credit load only when they are confident that a student's academic development will not be impaired and that the time freed will be well used.

Course intensification. The College believes that experience in a wide diversity of courses is an essential part of a Haverford education, but the College also recognizes that students may sometimes profit from the opportunity to work more intensively in a smaller number of subjects. There-

- (a) *A student admitted to the Thesis Program may enroll in the senior year for as few as three credits, and complete a thesis based on independent work.*
- (b) *A student admitted to an Interdepartmental Program must first have been accepted as an interdepartmental major (the two departments need not be in the same division). The program, which may include a reduced course load and a thesis, as in (a) above, will also include some advanced independent work relating to both departments.*
- (c) *A student admitted to a Concentrated Program will be permitted more than the usual amount of concentration, taking in each of two or three of the last four semesters, two double-credit courses in the major field, or one closely related.*

Students who meet the standards set by departments for Honors may be granted departmental or interdepartmental Honors for these programs.

Credit for Non-Collegiate Academic Work: By petition to the Committee on Student Standing and Programs a student may request the granting of credit for non-collegiate, supervised *academic work* undertaken away from the College. There may be important educational opportunities for a student to work in a non-university research laboratory, to do a supervised archaeological study on site, etc., for which the College will grant academic credit.

Such work may receive up to four credits provided the following conditions are met:

- 1) *The work is closely supervised by a person who is a faculty member at a college or university or who clearly holds the same qualifications;*
- 2) *The student's academic advisor approves the activity. In cases where the work is in an area outside the advisor's field, approval will also be required from a Haverford faculty member competent in the area of the project;*
- 3) *The project results in a product which is judged to be satisfactory by the field supervisor and the Haverford faculty members.*

Further detailed information may be found in the booklet *Academic Regulations*, obtainable upon request from the Dean of the College.

Graduation with less than 32 credits: Sufficiently mature students, if they possess outstanding ability or are judged to have legitimate reason for special consideration, may be allowed to graduate without necessarily accumulating all of the credits normally required.

Graduation in more than eight Haverford semesters: Although most students are expected to graduate in four academic years, some may take less and some may be permitted to take more.

Students who wish to take a five-year program with no modification of

requirements should secure the approval of their advisors and of the Dean. In all other cases of extended programs, even if no modification of academic requirements is involved, the student should petition the Committee on Student Standing and Programs.

Examples of the latter would include students with physical handicaps which prevent them from carrying a full load, students who wish to complete a program in four and one-half years, and students who wish to engage in activities for which academic credit at Haverford is not appropriate.

Graduation in six semesters: Students who have clearly defined career goals and strong motivation to achieve them may wish to consider a program for graduation in three years. This program can allow graduation with 30 course credits provided that overall performance is at a high level and that in addition to the usual requirements special requirements are fulfilled. In order to ensure breadth in the student's program some subject or meaningful combination of subjects outside the division of the major department must be studied for four consecutive semesters. These must be approved in advance by the major advisor and by the Committee on Student Standing and Programs. In addition one of the courses must involve a research project on a topic approved in advance by the major advisor and culminating in a thesis submitted to the department and approved by both the department and the committee. No course taken under the "no-numerical-grade" option described in the College's "Academic Regulations" can be counted toward the 30 credits required for graduation.

A student who wishes to graduate under this plan must enroll for five credits in each semester of the first year and should also be in contact with the departments of anticipated major work. Choice of major should be made by the end of the first semester of the sophomore year. Students who begin in the program may revert to a program of 32 credits completed in seven or eight semesters at any time.

For expenses and residence requirements see pp. 22, 29.

Graduation in seven semesters. Students may meet the normal requirements of 32 Haverford credits by enrolling for five credits for four semesters and for four credits for three semesters. Selection of this pattern will allow students to spend a full semester away from the campus at some time in their college careers.

B.A.-M.A. program. Haverford undergraduates of unusual ability who might normally complete a B.A. in three years may, for special reasons, stay at Haverford for an additional year in an M.A. program. Such a program might use the resources of Haverford, Bryn Mawr College or the University of

Pennsylvania. Students would have to be accepted by the department or departments involved and have the approval of the Committee on Student Standing and Programs for the specific program involved. Award of the Master's degree must be approved by the committee.

A student interested in a B.A.-M.A. Program should follow a six-semester B.A. sequence and, in the fall of the third (senior) year, should request the Committee on Student Standing and Programs to consider the M.A. proposal and the applicant's qualifications for it.

PREPARATION FOR PROFESSIONS: A large number of Haverford College students plan, after graduation, to enter upon further courses of study. As a liberal arts college, Haverford arranges its curriculum so that students who have such plans are able to meet the entrance requirements of graduate and professional schools. The College does not, however, attempt to anticipate in its own curriculum the work of any graduate or professional school. It is the conviction of the faculty that the best preparation for graduate work is a liberal education with sound training in basic disciplines, to which more specialized training may later be added.

A student who intends to go to a professional school is free to choose his major in accord with his principal abilities and interests, since professional schools such as those of business administration, education, law, medicine, or theology usually accept students on the basis of merit regardless of their choice of major and, except in the case of medical schools, without specific course requirements. The requirements of most State Boards of medical licensure are such that all students who hope to be admitted to a medical school must take six semester courses in the natural sciences, each of which must include laboratory work: two in Biology (usually Biology 200a and b, or 101b), two in Chemistry (107a, 108b, 202b or 203a) and two in Physics (111a and 112b).

Students planning to do graduate work in a departmental subject, such as economics, mathematics, history, etc., should consult as early as possible with the chairman of the department at Haverford which most nearly corresponds to the department of proposed work in graduate school. This advisor will be able to give guidance in the selection of courses and in the choice of major (which will not necessarily be in the department of intended graduate study), and to answer other questions.

Students planning to go to professional schools should seek advice as early as possible from the Career Planning Office. Law schools, medical schools, and some graduate schools require applicants to take special admission tests. Arrangements for taking these tests are the responsibility of the student concerned.

The Career Planning Office has prepared the following analysis of recent Haverford graduates:

	1974	1975	1976
Degrees granted	162	152	206
Graduates responding	145	143	173
% of graduates responding	89.5	94	84
Graduate Study	74 (51%)*	87 (60.8%)*	91 (52.6%)*
Arts and Sciences	20	33	21
Business	4	6	7
Fine Arts	—	—	3
Government or International Affairs	—	—	3
Law	17	27	27
Medicine	29	16	21
Social Work or Psychology	—	4	6
Theology	4	1	1
Undergraduate continuation	—	—	2
Employment	59 (40.7%)*	47 (32.9%)*	70 (40.5%)*
Banking and Finance	3	5	4
Business	8	5	14
Communications	5	6	3
Education	10	6	16
Government	4	5	8
Insurance	—	5	—
Science	7	3	6
Social Services	7	6	4
Miscellaneous	15	6	15
Seeking Employment	8 (5.5%)*	6 (4.2%)*	8 (4.6%)*
Miscellaneous Activities	4 (2.8%)*	3 (2.1%)*	4 (2.3%)*

*% of those responding

ACADEMIC REGULATIONS: The academic regulations of Bryn Mawr College apply to Haverford students enrolled in Bryn Mawr College courses. Administrative interpretations or decisions are made by the Deans at Bryn Mawr College.

Bryn Mawr College students enrolled in Haverford courses are subject to Haverford regulations as applied and interpreted by the Dean of the College.

They may also design their own programs and make their own arrangements with particular universities.

Haverford is a member of the Intercollegiate Center for Classical Studies in Rome of which the curriculum includes courses in Greek and Latin literature, Ancient History and Archaeology, and provides for the study of Italian.

Through Bryn Mawr College, selected Haverford students may participate in two summer programs of study abroad. (1) The *Institut d'Etudes Françaises d'Avignon* offers intensive work in significant aspects of French culture. (2) the *Centro de Estudios Hispánicos en Madrid* offers work for students whose interest is Spain and for those who wish to specialize in Latin-American affairs. In both programs students live with local families.

JUNIOR-YEAR LANGUAGE PROGRAM: Provision is made, through a cooperative program with Princeton University, for the intensive study of certain languages not offered at Haverford—Arabic, Chinese, Japanese, Persian, and Turkish. A student participating in this program spends the summer after the sophomore year in a program of intensive study of the language chosen, and then spends the junior year at Princeton University, continuing the study of the language and taking each semester two or three other courses in related regional studies. The remainder of the program will be electives, usually courses important for the Haverford major.

Students interested in this program should confer with the Dean in the early spring of the sophomore year. To be nominated by the College, a student must have a good academic record and must have secured the approval of his major supervisor. Selection from among the nominees is made by Princeton University.

Students who wish to study the less common languages without taking time away from Haverford should consider the offerings in Hebrew at Bryn Mawr College and in Oriental, Scandinavian, and Slavic languages at the University of Pennsylvania. Arrangements for taking such courses may be made in consultation with the Dean.

AFRICAN STUDIES: Students wishing to focus their interest on African civilization are encouraged to enroll in courses emphasizing African materials offered by several departments in the humanities and social sciences at Haverford, Bryn Mawr and Swarthmore Colleges and to arrange for regional concentration in fulfilling departmental requirements for majors. In planning their programs, students should consult Professor Wyatt MacGaffey.

VISITORS AND LECTURERS: As elsewhere, the principle of visiting lecturers is time-honored at Haverford, but especially during the last quarter-

century the College's regular teaching faculty has been supplemented annually by about 100 scholars, artists, scientists and outstanding representatives of other fields who are invited as part of Haverford's Distinguished Visitors Program.

A number of Nobel Prize winners and other very distinguished American and foreign scholars have visited, and continue to visit, the campus at the invitation of individual academic departments. Some may stay only a few hours, but most remain for a few days or, in some cases, may even conduct courses for an entire semester.

Whatever the schedule may be, its purpose is to bring the visitor into close contact with students. A typical visitor might give one or more public lectures, lunch with professional colleagues on the faculty, participate in a seminar, or dine with student majors from Haverford and Bryn Mawr at the home of the department chairman.

The visitors' program was greatly strengthened by a generous bequest from the late William Pyle Philips, of the class of 1902, who in 1950 left much of his estate to Haverford—a portion of which was specified to underwrite the expenses of bringing "distinguished scientists and statesmen" to Haverford. The Philips Fund is the largest of several currently supporting the entire Distinguished Visitors Program; others are the Scholars in the Humanities Fund, the Moore Fund for the Arts and Humanities, the Mary Farnum Brown Fund, the William Gibbons Rhoads Fund, the Thomas Shipley Fund administered by the English Department, the J.F. Lincoln Family Foundation Fund, and a special fund for African history. Lecturers and visitors to the campus on these funds during 1976-77 are listed on pp. 175-178.

THE MARGARET GEST CENTER FOR THE CROSS-CULTURAL STUDY OF RELIGION: The establishment of the Center was made possible by a bequest of Margaret Gest in memory of her parents, Emily Judson Baugh Gest and John Marshall Gest. In keeping with Miss Gest's desires and will, the Center aims "to promote better understanding among peoples" through the study of the "fundamental unity of religions" without "negating the differences." The current Center program is housed in the Gest Center, one of the College's oldest buildings, which has recently been restored with fidelity to its original functional grace through a generous gift of a friend of Margaret Gest.

The Center is under the direction of the Provost and an advisory committee chaired by Professor Wyatt MacGaffey. Under a program approved by the faculty in 1977 the committee is to appoint annually a member of the faculty as convener responsible for planning and directing the activities of the Center. Long-term visitors called Gest Fellows and short-term visitors who

NUMBERING SYSTEM

001-009 indicate elementary and intermediate courses.

100-199 indicate first-year courses in the major work.

200-299 indicate second-year courses in the major work.

300-399 indicate advanced courses in the major work.

400-499 indicate special categories of work (e.g., 480 for independent study courses).

a . . . the letter "a" following a number, indicates a one-credit course given in the first semester.

b . . . the letter "b" following a number, indicates a one-credit course given in the second semester.

c . . . the letter "c" following a number, indicates a one-credit course given two hours a week throughout the year.

d . . . the letter "d" following a number, indicates a half-credit course given during September-October.

e . . . the letter "e" following a number indicates a half-credit course given during November-December.

f . . . the letter "f" following a number indicates a half-credit course given throughout the first semester.

g . . . the letter "g" following a number indicates a half-credit course given during February-March.

h . . . the letter "h" following a number indicates a half-credit course given during April-May.

i . . . the letter "i" following a number indicates a half-credit course given throughout the second semester.

Full-year courses (two credits) carry a numerical designation only. They must be carried through two semesters. In some cases one semester of such a course may be taken with credit, but only with permission of the department concerned. Students are reminded that one semester credit is the equivalent of four semester hours.

r . . . the letter "r" following a number indicates a special Freshman course shared with Bryn Mawr College.

For suprascript numerals following faculty names, see p. 165.

Archaeology—Classical and Near Eastern (at Bryn Mawr College)

Professor **Machteld J. Mellink**, *Chairman*

Professor **Kyle M. Phillips, Jr.**¹

Professor **Brunilde S. Ridgway**³

Associate Professor **Richard S. Ellis**¹

Dean **Phyllis P. Bober**

Associate Professor of Latin **Russell T. Scott**

Lecturer **Gloria F. Pinney**

Lecturer **Harrison Eiteljorg**

Lecturer **Maria de J. Ellis**

Assistant **Janer D. Belson**

Assistant **Mark Fullerton**

The major courses provide an extensive survey of the ancient Mediterranean and Near Eastern civilizations, with emphasis on Greek art and archaeology.

MAJOR REQUIREMENTS Archaeology 101, 201 a (or another Near Eastern course), 203 a and b, 205b, 301a, 302 a or b, and the Senior Conference. All majors are urged to take Greek and Ancient History and to acquire a reading knowledge of French and German.

Allied Subjects include Ancient History, Anthropology, History of Art, Greek, Latin, Akkadian, Hebrew.

REQUIREMENTS FOR HONORS A long written paper is submitted on a topic selected by the student and approved by the Department. In preparation, the student confers through the year with the member of the Department under whose direction the paper is prepared.

101 An Introduction to Ancient Art L-2, H-1

M. J. Mellink, H. Eiteljorg

Four hours, including one of informal discussion.

A historical survey of the art of the ancient Near East, Greece and Rome.

201a Archaeology of Mesopotamia before 1600 B.C. H-2, S-1

R. S. Ellis

Offered in 1978-79 and alternate years.

202a Ancient Greek Cities and Sanctuaries L-2, H-1

B. S. Ridgway

A study of the form and cultural importance of three major Greek centers: the Athenian acropolis and the sanctuaries of Delphi and Olympia.

203a Hellenistic and Roman Sculpture L-2, H-1

B. S. Ridgway

From the Hellenistic period to the end of the Roman Empire.

203b Greek Sculpture L-3

B. S. Ridgway

Not offered in 1977-78.

Archaeology

205a The Ancient Near East H-2, S-1

M. de J. Ellis

See *Bryn Mawr College Calendar, History 205a*

205b Aegean Archaeology H-2, L-1

M. J. Mellink

The pre-Greek and early Greek cultures of the Aegean area: Minoan Crete, Troy, the Aegean islands, Mycenaean Greece and their overseas connections.

208b Texts as Sources for Near Eastern Archaeology H-2, S-1

M. de J. Ellis

The use of ancient documents for the reconstruction of material culture and society in the ancient Near East.

301a Greek Vase-Painting L-2, H-1

G. F. Pinney

Greek vase-painting as an original form of art, its relation to other arts, and its place in archaeological research.

302a Greek Architecture L-2, H-1

H. Eiteljorg

The Greek architectural tradition in its historical development.

302b Roman Architecture H-2, L-1

R. T. Scott

The architecture of the Republic and the early Roman Empire.

303b Etruscan Archaeology L-2, H-1

G. F. Pinney

An introduction to the sites and monuments of Etruria.

304a Monumental Painting L-2, H-1

G. F. Pinney

The arts of wall painting and mosaics in the Greek world and in Italy from the archaic period to the 3rd century A.D.

399 Senior Conference

H. Eiteljorg, M. J. Mellink

Weekly two-hour seminars for which readings are assigned and reports are prepared.

Astronomy

Associate Professor **R. Bruce Partridge**, *Chairman*
Assistant Professor **Keith Despain**

The Departmental work is designed to give students an understanding of and an interest in the universe in which they live, with emphasis upon the relation of astronomy to other fields of learning.

MAJOR REQUIREMENTS The normal major requirements are Astronomy 211b and four additional one-semester courses numbered above 200; Mathematics 113a and 114b, or 119a; Physics 111a and 112b; three written comprehensive examinations of three hours each.

REQUIREMENTS FOR HONORS All Astronomy majors are regarded as candidates for Honors. The award of Honors will be made on the basis of superior work in the departmental courses, in certain related courses, and in the comprehensive examinations.

101a Astronomical Ideas N-2, E-1*R. B. Partridge, K. Despain*

Fundamental concepts of modern astronomy, such as the motion and surface properties of the planets, the birth and death of stars, and the properties of the universe, presented in a historical matrix. Little mathematics and no calculus is required.

102b Astrophysics of the '70's N-2, A-1*R. B. Partridge*

Treatment of one or more of the following recent developments in astronomy: cosmology (past, present and future properties of the universe), high energy astrophysics (pulsars and quasars), radio astronomy, and the search of extraterrestrial life. The course is nontechnical; no calculus is needed. Astronomy 101a is recommended but not required.

211b Methods of Theoretical Physics and Astrophysics A-3*K. Despain*

Ordinary and partial differential equations as well as certain integral equations of astronomy and physics, with attention to the more important special functions and boundary value problems. Approximate solutions are obtained by linearization, perturbation, and variational procedures, with some use of numerical methods. Applications may include the quantum mechanics of atomic, molecular, and nuclear structure and collisions, the Hamilton-Jacobi theory of satellite and planetary motion, the mechanics of deformable bodies as applied to astronomical problems, and radiative transport. Prerequisites: Mathematics 113a and 114b, or 119a, and Physics 111a and 112b.

311a General Relativity and High Energy Astrophysics N-2, A-1*K. Despain*

(Also called Physics 311a)

Development and application of the tensor calculus to a discussion of general relativity and certain current variants; review of observational and experimental evidence; consideration of problems of high energy astrophysics, particularly gravitational radiation and gravitational collapse. Prerequisites: Mathematics 113a and 114b, or 119a, and Physics 111a and 112b.

Offered in 1977-78 and alternate years.

Astronomy

320b Cosmology N-3

R. B. Partridge

Various theoretical models for the origin and evolution of the universe, including the "Big Bang" and "Steady State" models; review of the relevant observational evidence. The course ends with an attempt to construct a unified picture of the evolution of the universe and some of the systems within it. Prerequisites: Mathematics 113a and 114b, or 119a, and Physics 111a and 112b.

Offered in 1977-78 and alternate years.

333a Galactic Structure N-2, A-1

R. B. Partridge

The distribution of stars and the interstellar medium; the dynamics of star (and galaxy) clusters; relevant observational material. Prerequisites: Mathematics 113a and 114b or 119a; Physics 111a and 112b; and Astronomy 211 or the consent of the instructor.

340b Radio Astronomy N-2, E-1

R. B. Partridge

Introduction to the basic techniques of radio and x-ray astronomy and to the various mechanisms that give rise to line and continuum emission at radio frequencies, and to x-rays. In addition, some of the most important observational results of radio, infra-red, and other non-optical branches of astronomy are presented. Prerequisites: Mathematics 113a and 114b, or 119a, and Physics 213a.

Offered in 1978-79 and alternate years.

371a Stellar Structure and Evolution N-2, A-1

K. Despain

Review of the theory of stellar structure and discussion of the problem of stellar evolution on the basis of the theoretical and observational evidence. Prerequisites: Mathematics 113a and 114b, or 119a, Physics 111a and 112b.

Offered in 1978-79 and alternate years.

380b Nuclear Astrophysics N-2, A-1

K. Despain

Discussion of the nuclear reactions leading to stellar energy generation, to the origin and abundance of the elements in various types of astronomical objects, and to the catastrophic stages of stellar evolution, with consideration of the nuclear species in the cosmic rays and nuclear age determinations. Prerequisites: Physics 111a and 112b, and Astronomy 211a, or the consent of the instructor.

Offered in 1978-79 and alternate years.

480 Independent Study

Staff

An example of the content of this course is the determination of the abundance of the elements in stellar atmospheres based on high dispersion spectra obtained at one of the major American observatories. Other examples of course content are optical and microwave observations relating to cosmological problems, and computations of stellar models and evolution. Prerequisite: consent of the instructor.

Biology

Professor **Irving Finger**,¹
Professor **Dietrich Kessler**, *Chairman*
Professor **Ariel G. Loewy**
Professor **Melvin Santer**
Assistant Professor **Christopher Goff**
Instructor **Ruth Rothman**⁶

During the past three decades a revolutionary expansion has occurred in our understanding of the operation of biological systems at the cellular and molecular level. The virtual obliteration, particularly at the research level, of the traditional lines which used to demarcate the areas of genetics, biochemistry, microbiology, cytology and cell physiology has necessitated a new approach to the teaching of biology. The following course descriptions reflect Haverford's approach to this New Biology.

The Department offers a number of courses (001a, 002b, 003a, 004a and 101b) which are suitable for the non-major and do not require previous training in chemistry or biology.

The courses designed for the major program are built up in a series of four stages.

- (1) A course in cell biology (200a, b) for which Chemistry 107a (or 101a) and 108b (or Bryn Mawr Chemistry 202) must be taken at least concurrently.
- (2) A series of 300-level junior courses or half-courses (300a, 300b, 301h, 302d, 303e, 304h, 305g), representing a "core" of advanced courses which complete the common experience required of all students majoring in the Cell Biology "track" of the Haverford Biology Department.
- (3) A series of 350-level advanced seminar courses in which scientific articles and reviews are examined and discussed in detail. These courses are designed to give the student an experience of the contemporary developments in a particular area of cell biology and are intended to develop his critical faculties as well as his creative talents.
- (4) A series of 400-level Senior Research Tutorials and a Senior Departmental Studies seminar. The Senior Research Tutorials taken for single or double credit (chosen from 400, 401, 402, 403, 404) involve reading current literature and performing laboratory research. The topics of these Research Tutorials lie in the areas of principal interest of the instructors and, with the consent of the instructor, may be started during the junior

year. A student has the opportunity to apply for a summer research stipend to begin research in the summer following the sophomore or junior year. Qualified Chemistry or Physics majors, or qualified students from Bryn Mawr College, may be admitted to the Senior Research Tutorials with consent of the instructor.

Senior Departmental Studies (499i) is a seminar course for seniors involving participation in the Department's Philips Lecture series and oral presentations of the research performed by students in the Department. The precise format varies somewhat from year to year and is worked out each year in consultation with senior students.

MAJOR REQUIREMENTS

- (a) Biology 200a, b.
- (b) Biology 300a and 300b and four of the following five half-semester courses: 301h, 302d, 303e, 304h, 305g.
- (c) Four half-semester courses, at the 350 level, at least one of which must be a Haverford Biology course. The others may be selected from among any other Biology courses or Haverford Chemistry courses listed as 200 or above, Bryn Mawr Chemistry courses listed as 302 or above, Bryn Mawr Biology courses listed as 300 or above, and selected Swarthmore Biology courses with the approval of Mr. Kessler.
- (d) One Senior Research Tutorial (two courses).
- (e) Biology 499i, Senior Departmental Studies (half-credit course).

Students who have had no chemistry courses as freshmen may enroll in Biology 200a, b as sophomores by taking Chemistry 107a (or 101a) and 108b concurrently. Students wishing to postpone Biology 200a, b to the junior year should obtain consent of the instructor at the end of their freshman year.

As preparation for graduate studies in Biology, the Department strongly recommends Physics 111a and 112b, and Chemistry 202b.

REQUIREMENTS FOR HONORS Since all Biology Majors participate in the departmental senior research program, all are candidates for Departmental Honors. These are awarded upon consideration of the following criteria of achievement: (a) grades, (b) senior research and thesis, (c) performance in Biology 499i.

COURSES WITH NO CHEMISTRY PREREQUISITES

001a Topics in Modern Biology I: The Human Revolution N-2, H-1 *A. G. Loewy*
An integrated approach to human biological and social evolution. Readings in philosophy of science, theories of evolution, the fossil and archeological record of man, primitive human societies, contemporary problems in human ecology and the future of man.

002b Topics in Modern Biology II: Evolution and Animal Behavior N-2, S-1
D. Kessler

The theory of evolution and the relationship of this theory to studies of social behavior in animals. A reading list of original works in the discipline and a study-guide are distributed at the beginning of the semester, and the student writes papers analyzing the material. The relevance of

the readings to the study of man's social behavior is considered; tutorial sessions and a film series on animal behavior form part of the course.

Not offered in 1977-78.

003a Topics in Modern Biology III: Microbes and Man N-3

M. Santer

(Also called General Programs 003a)

An analysis of the discoveries in the fields conventionally known as microbiology and genetics; in the 20th century they converged, the microbes becoming the biological vehicles for revealing the nature of the genetic material. The historical background to the work of Watson and Crick and their work on DNA is examined, together with the modern work on the manipulation of genetic material, i.e., "genetic engineering" and the social and ethical implications of the revolution resulting from molecular biology.

004a Topics in Modern Biology IV: Darwinian and Post-Darwinian Evolutionary Theory N-2, H-1

I. Finger

Introduction to evolutionary theory, both current and past, by reading advanced textbooks, reviews and scientific journals. Prerequisite: Biology 200a, b or consent of the instructor.

Not offered in 1977-78.

101b Biology: A Behavioral View N-2, E-1

D. Kessler

(Also called General Programs 101b)

Four hours: three lectures and one laboratory period.

An introductory course using behavior and the themes of evolution and adaptation as a unifying framework to integrate diverse areas of biology. The origin of life and species, Mendelian genetics, ecology, social behavior, sensory and endocrine physiology, cell biology and development are considered. Laboratories using the light microscope include observations of chromosomes, genetic experiments with fruit flies, and several behavioral projects.

A CORE PROGRAM OF COURSES IN MOLECULAR AND CELL BIOLOGY WITH PREREQUISITES IN CHEMISTRY

200a,b Cell Structure and Function N-2, E-1

M. Santer, A. G. Loewy, C. Goff

Four hours: three lectures and one laboratory period.

R. Rothman

An introduction to cell biology. The first semester describes properties of macromolecules, intermediary metabolism and biosynthesis of macromolecules. The second semester stresses the cellular functions and control mechanisms elucidated by classical cytology and genetics, electron microscopy and molecular genetics. The laboratory introduces the student to techniques used in cytology and genetics, and illustrates the use of microorganisms as tools for studying the synthesis of biological macromolecules. Students wishing to postpone this course to the junior year should obtain consent of the instructor at the end of their freshman year. Prerequisites: either Haverford Chemistry 107a or 101a and 108b or Bryn Mawr Chemistry 202 must be taken previously or concurrently.

300a Laboratory in Electron Microscopy and Protein Chemistry E-2, N-1

Two periods per week.

A. G. Loewy, D. Kessler, R. Rothman

Muscle actin and myosin are purified and examined using negative straining techniques with the electron microscope. Basic techniques in protein chemistry are used to purify and characterize a protein molecule, including fractionation, column chromatography, gel filtration, gel electrophoresis, amino acid analysis and enzyme assay procedures. Prerequisite: Biology 200a, or consent of the instructor.

300b Laboratory in Molecular Biology E-2, N-1 C.Goff, M. Santer, R. Rothman
Two periods per week.

Students purify RNA polymerase, the enzyme responsible for transcription of genetic information, from *E. coli*. Techniques used include differential salt precipitation, ion exchange and "affinity" chromatography, and velocity gradient centrifugation. Students monitor purification by specific activity (using radiochemical assays) and by polyacrylamide gel electrophoresis and study the *in vitro* transcription specificity of the enzyme. Experiments are also carried out on the primary structure of RNA and DNA using the sequence techniques of Sanger. Prerequisite: Biology 200a, b or consent of the instructor.

301h Cell Biology I: Molecular and Cellular Genetics N-3 R. Rothman

An examination of the biochemical basis of gene replication, mapping and expression, with examples drawn chiefly from the microbial world. Prerequisite: Biology 200a, b or its equivalent.
Not offered in 1977-78.

302d Cell Biology II: Comparative Cell Structure and Function N-3 D. Kessler

A study of various cell types with emphasis on ultrastructural, biochemical, and physiological function. Prerequisite: Biology 200a, b or its equivalent.

303e Cell Biology III: Structure and Function of Macromolecules N-3 A. G. Lowey

A study of the chemistry of proteins and its application to enzymology and assembly systems. Prerequisites: Biology 200a, b and Chemistry 202b and 203a to be taken previously or concurrently.

**304h Cell Biology IV: Metabolic Biochemistry and Biosynthesis
of Macromolecules N-3**

M. Santer

A study of the various pathways of carbohydrate metabolism and metabolic processes leading to ATP synthesis in non-photosynthetic and photosynthetic organisms; the biosynthesis of amino acids and nucleotides which provide the building blocks for nucleic acid and protein synthesis; a detailed analysis of DNA, RNA, and protein synthesis. Prerequisites: Biology 200a, b and Chemistry 203a to be taken previously or concurrently.

305g Cell Biology V: Developmental Biology N-3

C. Goff

Examination of (1) the biochemical basis of cellular differentiation, and (2) the integration of differentiated individual cells during development of higher organisms. Emphasis is on the molecular biology of eucaryotic cells. Prerequisite: Biology 200a, b.

ADVANCED SPECIAL TOPICS COURSES IN MOLECULAR AND CELL BIOLOGY

351h The Biochemistry of Membrane Transport N-3

A. G. Loewy

The molecular mechanism of membrane transport as studied in procaryotic and eucaryotic cells.

353g The Biosynthesis of Organelles N-3

M. Santer

The biosynthesis and assembly of an RNA bacteriophage and of cellular organelles such as mitochondria, chloroplasts, ribosomes and chromosomes. Prerequisite: Biology 304h or consent of the instructor.

354d Molecular Virology N-3*C. Goff*

Topics include: Replication of bacteriophages M13 and Φ X174; RNA synthesis control by bacteriophages T₇, T₄, and λ ; protein processing during T₄ assembly; replication and transcription of both nuclear and cytoplasmic animal viruses (SV40, polyoma, polio, RSV); virus-induced cell transformation. Class format involves both lectures and critical discussion of journal articles. Prerequisites: Biology 301h and 305g, or consultation with the instructor.

355e Fundamentals of Immunology N-3*I. Finger*

Characteristics of the immune response, properties of antigens and antibodies, cellular immunology, transplantation, theories of antibody variability and synthesis, and responses of the body to auto antibodies. Prerequisites: Biology 301h and 303e or consent of the instructor. *Not offered in 1977-78.*

356a Heredity and Regulation N-2, A-1*I. Finger*

Emphasis on the structure and mutability of genes, transmission and storage of genetic information, and the translation of this information into specific macromolecules. Cytoplasmic control of gene expression and other mechanisms for the regulation of gene activity are also discussed. Prerequisites: Biology 301h or consent of the instructor. *Not offered in 1977-78.*

358a Cell Motility N-3*D. Kessler*

The molecular basis of motility, using ultrastructural, physiological, and biochemical studies with a variety of cells from bacteria to higher vertebrates; both muscle and non-muscle. The nerve-muscle interaction serves as an appropriate model. Prerequisites: Biology 302d or consent of the instructor.

SENIOR RESEARCH AND SEMINAR COURSES**400 Senior Research Tutorial in Covalent Interactions between Protein Molecules E-3***Two laboratory periods per week**A. G. Loewy*

Studies on assembly phenomena and energy transductions. Laboratory work is supplemented with readings related to the area of investigation, and with the presentation of discussions by students. Prerequisite: consent of the instructor.

401 Senior Research Tutorial in Cell Biochemistry E-2, N-1*Two laboratory periods per week.**M. Santer*

Student research on the chemical composition, biosynthesis and hereditary control of ribosomes. Laboratory work is supplemented with readings from current literature and with reports by students on material related to the research. Prerequisite: consent of the instructor.

402 Senior Research Tutorial in Gene Action E-2, N-1*Two laboratory periods per week.**I. Finger*

Regulation of gene activity and the function and evolutionary significance of surface antigens. Prerequisite: consent of the instructor.

Biology

403 Senior Research Tutorial in Experimental Cytology E-3 *D. Kessler*
Two laboratory periods per week.

Studies on the localization and structure of myosin and actin-like proteins from various cell types. Ultrastructural studies are undertaken by electron microscopy using various immunological methods. Prerequisite: consent of instructor.

404 Senior Research Tutorial in Regulation of Gene Expression E-2, N-1 *C. Goff*
Two laboratory periods per week.

Student research on the molecular mechanisms which regulate gene expression in microorganisms. Laboratory research currently focuses on the mechanisms controlling (1) transcription of RNA during bacteriophage T₄ development and (2) expression of enzymes in fungi, using genetic and biochemical techniques to select and study mutants exhibiting altered regulation. Prerequisite: consent of the instructor.

480a, b Independent Study N-3 *Staff*
Prerequisite: consent of the instructor.

499i Senior Departmental Studies N-3 *Staff*

A senior seminar which meets one evening each week consisting of:

- (a) Presentation and discussion of research plans and research results by students and faculty;
- (b) Participation in the Department's Philips Visitors Program;
- (c) Students' presentation of papers on contemporary developments in experimental biology, providing an opportunity for library research.

COURSES OFFERED AT BRYN MAWR COLLEGE

The following courses can be used to satisfy the 350-level requirements for the Biology major at Haverford:

- | | |
|---|--------------------------------------|
| 301 Cell Physiology and Biology N-2, E-1 | <i>R. L. Conner, D. Cassel</i> |
| 352 Problems in Molecular Biology N-2, A-1 | <i>D. Cassel</i> |
| 353 Biochemistry: Macromolecules N-2, E-1 | <i>D. J. Prescott, K. Strothkamp</i> |
| 355 Problems in Developmental Biology N-3 | <i>K. Orkwiszewski</i> |
| 357 Computer Usage in Life Sciences A-2, E-1 | <i>P. O. Pruett</i> |

Chemistry

Professor **John P. Chesick**

Professor **Robert M. Gavin, Jr.**, *Chairman*

Professor **Colin F. MacKay**¹

Professor **Claude E. Wintner**

Assistant Professor **Charles Lerman**

Assistant Professor **Terry L. Newirth**⁶

The program in Chemistry is designed to meet the needs of students who are pursuing chemistry for any of a variety of reasons. Introductory courses in the Department provide a broad introduction to the science of chemistry as one of the liberal arts. Intermediate and advanced courses provide sound preparation for a wide range of professional activities in the physical, biological, and medical sciences. At all levels extensive use is made of the wide range of instruments available to students, for which see page 13.

The major program in Chemistry recognizes that chemistry as a discipline occupies the broad area between physics and biology with strong ties to both; indeed, some of the most exciting areas in science today are found in the interdisciplinary fields of chemical physics and chemical biology. The Department major allows the student maximum flexibility in designing a program which can be directed either toward one of these interdisciplinary areas or toward one of the more traditional areas of chemistry. This flexibility is apparent in the major requirements, which accept on an equal basis advanced courses in Biology, Chemistry, or Physics.

This flexibility further allows the major advisor and each student in consultation to plan a program which takes into account that student's interests and career aims. Students who are interested in graduate study in any of the three areas of departmental emphasis are strongly urged to go beyond the eight-course program which constitutes the College major. Some typical programs which prepare for graduate study are given below:

Chemistry: Chemistry 107a, 108b, 202b, 203a, 301a, 302b, 310d,e, 303a or 313a, 355g,h or 357g,h, 356b; Physics 111a, 112b; Mathematics 113a, 114b (or 119a). German or Russian language study is strongly advised.

Chemical Physics: Chemistry 107a, 108b, 202b, 203a, 301a, 302b, 303b; Chemistry 303a or Physics 214b; Chemistry 305d,e or Physics 314a; and one additional advanced course in Physical Chemistry or Physics; Physics 111a and 112b; Mathematics 113a, 114b or 119a, 221a.

Chemical Biology: Chemistry 107a, 108b, 202b, 203a, 301a, 302b, 313a, 356b; Biology 200a, 300a, 303e, 304h; Physics 111a, 112b; Mathematics 113a, 114b or 119a.

Pre-Medical Students: See the section of the catalog on preparation for professions, p. 36. The usual requirements of four courses in Chemistry may be met by enrolling in Chemistry 107a, 108b, 202b and 203a.

Freshmen taking their first course in the Department are required to take a placement examination given during Customs Week. This examination, the results of Advanced Placement tests, and school records will form the basis for recommended placement in Chemistry. Students who are interested in the mathematically-based areas of chemistry may wish to consider taking Physics 111a and Chemistry 202b as freshmen.

In addition to the course program, opportunities are offered for pursuit of laboratory research problems under faculty direction as described under Research Tutorials below.

MAJOR REQUIREMENTS Chemistry 107a, 108b, 202b, 301a, and 302b or 303b; Mathematics 113a, 114b (or 119a); Physics 111a; plus three advanced courses in Chemistry, Biology or Physics. One of these advanced courses must be in the area of organic chemistry or biology and one must be in the area of advanced inorganic or physical chemistry, or advanced physics. Biology and Physics courses numbered 300 or above are defined as advanced courses but reading courses designed for non-scientists do not meet this requirement. The Chemistry 301a-302b sequence meets the College advanced level comprehensive requirement. Any requirement may be met by taking a course of equivalent level at Bryn Mawr College.

It is advised that Physics 111a be completed by the middle of the sophomore year, to provide maximum flexibility in course planning during the junior and senior years.

In order to qualify for admission to an advanced course a student must earn a grade of at least 70 in those courses listed as prerequisites.

REQUIREMENTS FOR HONORS Students who are considered qualified will be invited to become candidates for Departmental Honors during the second semester of the junior year. Honors candidates will be expected to do superior work in major courses and to complete a full-year senior research problem at a level superior both in quality and quantity of effort to that expected in normal course work. Research work extending through two semesters, a final paper, and oral presentation of the work is usually expected of a candidate for Departmental Honors.

101a Atoms and Molecules in Isolation and in Interaction N-2, A-1 *C. E. Wintner*
Three lectures; no laboratory.

Basic concepts in the field of chemistry. Both individual and bulk properties of atoms and molecules are considered, thus establishing a basis for an appreciation of the significance of chemical reactivity in a variety of situations. Open to students with no previous training in science.

107a The Physical Bases of Chemical Reactivity N-2, E-1
Four hours: three lectures and one laboratory period. *J. P. Chesick, R. M. Gavin*

Chemical reactivity (energetics, rate processes, molecular architecture, properties of chemical bonds, etc.) used as the basis for understanding some chemical reactions of the elements from hydrogen to chlorine in the periodic table. Laboratory work emphasizes quantitative techniques and careful analysis of data gathered. Prerequisites: previous chemistry and assignment by the Department.

108b Introduction to Organic Chemistry N-2, A-1

T. L. Newirth

Four hours: three lectures and one laboratory period.

The properties of the common organic functional groups and the basic mechanistic concepts of organic chemistry viewed within the context of the chemistry of the other light elements as developed in Chemistry 107a. Prerequisite: Chemistry 107a or consent of the instructor.

202b Basic Principles of Physical Chemistry N-2, E-1

J. P. Chesick

Four hours: three lectures and one laboratory period.

A course designed to acquaint the student with basic areas of physical chemistry and to serve as the gateway to the area-oriented physical chemistry courses in the curriculum. Particular emphasis is placed on solution thermodynamics and equilibria. Other topics include electrochemistry, colligative and phase properties, chemical kinetics, quantum mechanics and spectroscopy. Laboratory exercises consist of the quantitative study of systems illustrating principles developed in the lectures. Prerequisites: Physics 111a and Mathematics 113a or 119a, or consent of the instructor.

203a Topics in Organic Chemistry N-2, E-1

T. L. Newirth

Four hours: three lectures and one laboratory period.

Topics in stereochemistry, reaction mechanisms, biochemistry, and natural-products chemistry, building on the fundamentals developed in Chemistry 107a, 108b. Prerequisite: Chemistry 108b.

209b Topics in Chemical Science N-2, A-1

R. M. Gavin

(Also called General Programs 209b)

An examination of selected topics related to chemistry, intended only for students with minimal background in science. Students are invited to propose topics for consideration, which will be announced prior to registration; "Air and Water Pollution" and "Evolution and Chemistry" have been considered in the past. Not open to students who have taken Astronomy, Biology, Chemistry or Physics courses numbered 107 or higher with the exception of Physics 110a and 117b.

301a, 302b Laboratory in Chemical Structure and Reactivity E-2, A-1*Two laboratory periods.*

C. Lerman, R. M. Gavin

Inorganic, organic, and physical chemistry concepts integrated in a broad laboratory study of structure and its relationship to chemical reactivity. A variety of spectroscopic methods are introduced as structural and analytical tools. Chemical kinetics, isotopic labeling, chromatography, and other physical methods are used in studies of reactions of inorganic and organic compounds including photochemical and enzyme-catalyzed reactions. The experiments are "open-ended" and students are encouraged to design their own approach to the questions investigated. Prerequisites: Chemistry 108b and Chemistry 202b.

303a Quantum Mechanics of Atoms and Molecules A-2, N-1

J. P. Chesick

Three lectures.

An introduction to quantum chemistry with major applications to problems in chemical bonding and molecular spectroscopy. Prerequisites: Physics 111a and Mathematics 114b or its equivalent.

Offered in 1977-78 at Haverford College

120b Rome from Caesar to Nero H-2, V-1

D. J. Gillis

(Also called General Programs 120b)

An integrated study of the history, literature, philosophy, religion, art and architecture, politics, social structure and myths of Rome during the final stages of the Republic and the early years of the Empire; critical readings in primary sources and supplementary modern texts.

207b Seminar in Classical Studies L-2, V-1

N. G. L. Hammond

(Also called General Programs 207b)

Topic for 1978: The Theatre of Dionysus

The plays of Aeschylus, Sophocles, Euripides and Aristophanes; selected secondary sources on Athenian drama. Enrollment limited to 25 upperclassmen.

208a Seminar in Classical Studies L-2, V-1

F. C. Kohler

(Also called General Programs 208a)

Topic for 1977: Hero and Heroine

From the hero and heroine of classical myth to those of modern fiction. The relationship of the heroic and anti-heroic central characters to the type of fiction in which they appear. Male and female stereotypes; central character types in such modes of popular fiction as the picaresque tale and the modern "superhero" comic book. Emphasis on classical drama and the Western novel.

Economics

Professor **Holland Hunter**, *Chairman*

Associate Professor **Vernon J. Dixon**

Lecturer **Samuel Gubins**⁶

Instructor **Michael Weinstein**

At Bryn Mawr College

Professor **Richard B. DuBoff**

Associate Professor **Noel J. J. Farley**, *Chairman*

Associate Professor **Helen M. Hunter**

Assistant Professor **Li Way Lee**

The work in Economics provides a basis for understanding and evaluating the operation of the American economy and other types of economy. Concepts and analytic methods are presented as aids in formation of intelligent policy judgments. The introductory courses, Economics 111a or b and 112a or b, are designed to give the kind of informed perspective on economic performance standards that should be part of a liberal education. The group of intermediate courses offers a fuller range of material on major topics in the field, designed to be useful to non-majors as well as majors. The group of advanced courses supplies a theoretical and methodological foundation for those who either expect to major in Economics or to make use of economics in their professional careers. Majors are encouraged to take these courses in their sophomore or junior years, where practicable. In all courses students are exposed to the data and primary source material that underlie sound economic analysis, and are encouraged to apply oral, written and computer methods in analyzing this evidence.

Students planning a career in economics, business and management will find various Economics courses useful as introductions to the mathematical methods and theoretical models that are now part of advanced professional training. In addition, it is recommended that students with these career interests include calculus and linear algebra in their course work.

MAJOR REQUIREMENTS Economics 111a or b, 112a or b; 203a or b; two semester courses from 303b, 304a, 310b; three other semester courses, one of which is the research seminar, 398a, normally taken during the senior year; 399b; and three other approved courses in the social sciences or mathematics. The comprehensive examination taken by all majors involves both written and oral examinations. Prospective majors in Economics are advised to take Economics 111a or b and 112a or b by the end of the first semester of their sophomore year. Only one topics course (225a or b) may be offered in fulfillment of major course requirements.

REQUIREMENTS FOR HONORS Plans for Honors work will usually be laid during a student's junior year. An Honors project will involve a paper of high quality, usually begun in

Economics

the research seminar. The oral examination in the case of Honors may include the participation of outside examiners.

111a or b Introduction to Macroeconomics S-3 *Staff*

The analysis of national economic behavior including prosperity and depression; theories of inflation and unemployment; the role of government in managing and mis-managing the economy by influencing total national expenditure and by regulating financial institutions; the international role of the United States. The focus is on Western mixed-capitalist economies.

112a or b Introduction to Microeconomics S-3 *Staff*

Techniques of analysis that apply to all economic systems in general and modern mixed-capitalism in particular. The course is intended to provide a method of examining economic behavior that will continue to be useful in a changing economic world.

115a Economic Accounting S-3 *V. J. Dixon, Holland Hunter*

An introduction to the theory and practice of classifying, recording and evaluating the activities of business firms; development of the accounting cycle; preparation and analysis of corporate reports; introduction to selected corporate financial problems (capitalization, leverage and the issuance of securities) and to the operation of organized securities markets.

201a United States Economic Development S-2, H-1 *R. B. DuBoff*

Long term trends in output, resources, and technology; structure of consumption, production, and distribution; foreign trade and investment; and the role of the state. Quantitative findings provide the points of departure, and the framework is one of imbalances and disequilibria in an expanding capitalist economy. Prerequisites: Economics 111a or b and 112a or b.

202b Latin American Economic Development H-2, S-1 *Staff*

A theoretical and empirical analysis in an historical setting of the factors which have led to the economic underdevelopment of Latin America; the interrelationship between political and social change and economic growth.

203a or b Statistical Methods in Economics A-2, S-1 *Helen M. Hunter, M. Weinstein*

Frequency distributions, probability and sampling theory, simple correlation and multiple regression, and an introduction to econometric terminology and reasoning. The computer programming and other techniques required are developed as part of the course. Prerequisites: Economics 111a or b and Economics 112a or b.

205a The Corporation and Public Policy S-3 *L. W. Lee*

The economic effects of anti-trust legislation on market structure in static and dynamic settings; corporate performance evaluated within the framework of theories of the firm; emphasis on individual industry studies; public utilities and government regulatory actions; pollution, discrimination and public policy. Prerequisite: Economics 112a or b.
Offered in 1978-79 and alternate years.

206b International Economic Theory and Policy S-3 *N. J. J. Farley* *(May also be called Russian 206b)*

Current problems in international trade; the theory of trade; the balance of payments and the theory of disturbances and adjustment in the international economy; economic integration; the

impact of growth in rich and poor countries on the development of the world economy. Prerequisites: Economics 111a or b and Economics 112a or b.

207a Money and Banking S-3

Staff

The development and present organization of the money and banking system of the United States. Domestic and international problems of monetary theory and policy. Prerequisites: Economics 111a or b and Economics 112a or b.

208b Economics of the Public Sector S-3

L. W. Lee

Concept of public goods; expenditures and financing decisions analyzed within the framework of efficiency criteria and the distribution of benefits and costs; case studies of particular government decisions with emphasis on education and housing; interaction between budgetary decisions and the economic environment. Prerequisites: Economics 111a or b and Economics 112a or b.

Offered in 1977-78 and alternate years.

209a Urban Economics S-3

V. J. Dixon

Application of micro- and macroeconomic theory to urban economic behavior. Topics considered within the framework of theory include: housing and land use, transportation, urban labor markets, urbanization, demand for and financing of urban services. Prerequisite: Economics 112a or b or consent of the instructor.

210a Developing Economies S-3

Holland Hunter, N. J. J. Farley

(May also be called Russian 210b)

Analysis of the structural transformation of developing economies. Causes and roles of saving, investment, skills, technological change and trade in the development process; strategies and methods of economic planning. Prerequisites: Economics 111a or b and Economics 112a or b.

Offered in 1977-78 and alternate years.

211a The Soviet System S-2, H-1

Holland Hunter

(Also called Political Science 211a and Russian 211a)

An analysis of the structure and functioning of major Soviet economic, political, and social institutions; current arrangements studied as products of historical development; evaluation of present performance and prospects. Prerequisite: two semester courses of economics, political science, or history.

Offered in 1978-79 and alternate years.

216b Economic History and Growth, 1750-1970 H-2, S-1

R. B. DuBoff

The development of the international market economy from the British Industrial Revolution to World War II and its aftermath. Related topics include the underlying causes of economic growth and underdevelopment, the spread of industrialization and technological modernization to Western Europe and North America, resource allocation and political power, and "Is Economic Growth Worth It?" Prerequisites: Economics 111a or b and 112a or b or permission of instructor.

Offered in 1978-79 and alternate years.

217a Topics in Cliometric History of the United States S-2, H-1

M. Weinstein

(Also called History 217a)

Examination of some economic impacts of various historical institutional changes in the U.S. Cliometrics emphasizes quantitative testing of hypotheses, with frequent recourse to explicit

Economics

models of economic relationships. Topics might include: slavery; the Depression; the New Deal; federal regulatory agencies; unions; the factory system; income distribution; and growth. Prerequisites: Economics 111 or 112, and History 202 or 340b, or consent of instructor. Offered in 1978-1979 and alternate years.

222b History of Economic Thought S-2, H-1 *R. B. DuBoff*

Examination of the Mercantilists, the Physiocrats, Smith, Malthus, Ricardo, Marx, Mill, Marshall, and Keynes with particular emphasis on theories concerning economic growth and the stationary state, value and distribution, and the role of the state. Prerequisites: Economics 111a or b and 112a or b. Offered in 1977-78 and alternate years.

223a Labor History and Economics S-2, H-1 *M. Weinstein*

Examination of past and present labor conditions, legislation, and institutions. Emphasis on job hierarchies; determination of wages and unemployment; alienation; opportunities for worker self-management; and comparison to other economic systems (including China, Yugoslavia). Prerequisite: Economics 111 or 112, or consent of instructor. Offered in 1977-78 and alternate years.

224a Distribution of Income in the United States: Fact and Theory S-3 *M. Weinstein*

Discussion of alternative theories of income distribution (including Marxian); trends in inequality and poverty; economic discrimination against women and minority groups; theories of justice and equity; redistributive economic policies. Prerequisites: Economics 111 or 112, or consent of the instructor. Offered in 1978-79 and alternate years.

225a or b Topics in Economics S-3 *Staff*

The study of contemporary problems from the economist's viewpoint, selected from the areas of U.S. foreign and domestic economic policies. Students are expected to undertake research projects. Prerequisites: Economics 111a or b and Economics 112a or b or consent of the instructor.

302b Introduction to Econometrics S-2, A-1 *Helen M. Hunter*

Further development of the econometric theory presented in Economics 203a or b and consideration of its most important empirical economic applications. Each student does a six-week empirical research project using multiple regression and other statistical techniques. Prerequisite: Economics 203a or b or consent of the instructor.

303b Macroeconomic Analysis S-2, A-1 *V. J. Dixon*

Rigorous review of the theoretical foundations of income determination, monetary phenomena, and fluctuations in price level and employment. Introduction to dynamic processes. Prerequisites: Economics 111a or b and Economics 112a or b.

304a Microeconomic Analysis S-2, A-1 *L. W. Lee*

Systematic investigation of analytic relationships underlying consumer welfare, efficient resource allocation, ideal pricing, and the distribution of income. Half of the course is devoted to the application of microeconomic theory to current problems. Prerequisite: Economics 112a or b or consent of instructor.

307b Theory of Capital Markets S-3*L. W. Lee*

Introduction to the theory of capital markets. Emphases on portfolio theory and applications to individual and corporate decision making; instruments, institutions and procedures of capital markets; special attention to corporate mergers and failures. Prerequisites: Economics 112a or b and Economics 203a or b or consent of instructor.

Offered in 1978-79 and alternate years.

310b Interindustry Analysis S-2, A-1*Holland Hunter*

An introduction to input-output methods of analyzing the United States employment and output, both regionally and sectorally. Application of linear programming methods, intersectorally and intertemporally to aggregate plan testing, sensitivity analysis, and alternative expansion paths in other countries. Prerequisites: Economics 111a or b and Economics 112a or b.

312a Economic Integration: Theory and Policy S-3*N. J. J. Farley*

Models of economic integration in the world economy; static and dynamic benefits and costs of increased trade in a customs union arrangement; analysis of international factor mobility; the role of the multinationals; the Euro-dollar market. Prerequisite: Economics 206b.

Offered in 1977-78 and alternate years.

314b Advanced Theory Seminar S-2, A-1*M. Weinstein*

First part: application of mathematics to economics including multivariate optimization, comparative static analysis of simultaneous equation systems, dynamic analysis (differential and difference equations), and linear algebra. Second part: seminar on one advanced topic to be announced. Prerequisites: Economics 304a and Mathematics 113a or consent of the instructor.

321b Quantitative Analysis of Economic Change S-2, A-1*Helen M. Hunter*

Measurement of national income and national welfare; input-output analysis; indexes of price and production; econometric models of growth; the effects of long-run change, growth, and inflation on the distribution of income and living standards; measurement of business cycles; short-run forecasting with (and without) econometric models. Prerequisite: Economics 203a or b.

Offered in 1977-78 and alternate years.

398a Research Seminar S-3*Staff*

(May also be called Russian 398a)

Independent empirical research on topics selected by students in consultation with Department members. Weekly seminars review problems in research methodology, data manipulation, and the presentation of results. Prerequisite: Senior status or consent of the instructor.

399b Senior Seminar S-3*Staff*

Weekly seminar for developing perspective, filling gaps, and pulling together the theory and practice of economics. Senior majors choose topics, prepare analyses, and review their implications. Questions for the comprehensive examination grow out of the seminar.

480, 481 Independent Study

English

Professor **John Ashmead, Jr.**³

Professor **John A. Lester, Jr.**, *Chairman*

Professor **Edgar S. Rose**

Professor **Alfred W. Satterthwaite**

Associate Professor **James C. Ransom**, *Associate Chairman*

Assistant Professor **Joanne Hutchinson**⁶

Assistant Professor **Sandra G. Malard**

Assistant Professor **Jeanne Walker**⁷

Lecturer **Maurice A. Lee**⁶

Lecturer in Humanities **William Paul**⁶

Instructor **Carolyn F. Phoenix**⁶

Instructor **Catherine J. Robert**⁶

The major in English is designed to give students committed to a literary career a firm grasp of the literary traditions of England and the United States, and the critical skills to enable them to move effectively on to post-graduate study. The major seeks also to meet the needs of those students who look forward to careers in medicine, the ministry, business, government service, or law. In meeting these varied demands, the major in English addresses itself directly to the great traditions of English and American literature, and seeks to achieve, so far as the years permit, a substantial degree of penetration and advancement to a skilled, disciplined, and perceptive literary understanding. These are the objectives which lie behind the major program and the curricular offerings described here.

THE MAJOR PROGRAM

The English curriculum addresses itself to two major literary traditions, English and American, and provides a major concentration in each. The student is urged to sample each tradition early in his undergraduate career.

By then following one program or the other, the student should gain a full sense of the depth and range of one of these literary traditions. Specific details of the major program, and the meeting of major requirements, are worked out with the student's major advisor.

REQUIREMENTS Ten semester-courses are required for the English major, including two semesters of introductory study in the English literary tradition (English 101 or 015r), English 399b (Senior Conference), and one other 300-level course.

Requirements of the two major concentrations are as follows:

A. English Literature: *one course* in Medieval or Renaissance literature, exclusive of Shakespeare; *one course* in literature from the early 17th century through 1830; *one course* in

literature from 1830 to the present; *one course* concerned explicitly with the theory or practice of literature or language (e.g., a course in a genre, in literature theory, in linguistics, in writing).

- B. American Literature: English 260a, 260b, and 264b; four additional courses constituting a coherent program of advancing studies.

A student who wishes to vary his program from the major concentrations described above may submit a proposal to the Chairman of the English Department, describing the proposed program in detail and making clear its goals and its coherence. Such special programs require the approval of the English Department as a whole.

Courses taken in English at Bryn Mawr College may be counted toward the Haverford English major (except that the Bryn Mawr Senior Conference course is not open to Haverford students). The two departments work closely together in curricular planning, so that there are substantial offerings each year in the major periods, genres, and authors. Cooperative planning seeks to assure variety in curricular offerings; the Haverford English major has in effect two major curricula to choose from.

Major credit will be given for two semester courses in a foreign literature in the original language, or in Classical civilization. All English majors should have a reading knowledge of at least one foreign language. Students who plan to go to graduate school should remember that many graduate schools require a reading knowledge of both French and German, and some require a knowledge of Latin also for the Ph.D. in English.

In the election of courses outside the student's major program, certain related courses of study are strongly recommended. These include courses in other literatures and in philosophy; the literature of the Old and New Testaments; British and American history, and the history of science; courses in psychology (especially in theories of personality); fine arts and music; linguistics. Consideration should be given also to relevant courses in General Programs at Haverford, and to Interdepartmental Studies courses at Bryn Mawr. In this and in all matters of curricular and academic counselling, the student consults closely with the English Faculty member who, with mutual consent, has been selected as advisor.

Two particular lines of interest develop so frequently in students concentrating in English that the Department has developed criteria and curricular offerings to give them support. In Creative Writing, a sequence of studies at Haverford and at Bryn Mawr College can provide considerable experience and discipline within the major program. Similarly in American Studies, four coherently chosen courses plus work in related disciplines can add a valuable special dimension to the student's concentration in American Literature. Students interested in exploring either of these possibilities are asked to consult with the Chairman of the Department.

The comprehensive examination is developed in close association with English 399b and with the student's previous individual program in English.

REQUIREMENTS FOR HONORS Students whose work shows superior achievement will be invited to become Honors candidates at the beginning of their Senior year. Candidates for Honors have an average in the range of 87 in all English courses (including English 399b) within the major program.

Each Honors candidate must submit a substantial scholarly or creative paper which must be in the hands of the Chairman of the Department not later than the first week of April.

High Honors, like Honors, are awarded by the Department on the basis of achievement in courses, in the Honors paper, and in the comprehensive examination, with the further requirement of unusual distinction in an oral examination.

(*Note:* The Department regularly prepares *full* "Department Course Descriptions," available at the English Office before registration period for each semester.)

- 015r Freshman Writing Seminar, Readings in English Literature L-2, V-1** J. C. Ransom
 Two-semester course, combining much of the writing of the Freshman Writing Seminar with the readings of English 101a and b. Those Haverford and Bryn Mawr freshmen students who choose it may count it as the prerequisite to the English major, and at Haverford it fulfills the Freshman Writing Seminar and the Freshman Seminar requirement.
Offered jointly by Haverford and Bryn Mawr, with sections on both campuses.
- 101a,b Major Works of English Literature L-2, V-1** J. Hutchinson, S.G. Malard
 Two-semester introductory course, required of students intending to major in English and open to other students except those presenting English 015r. In substance, the course comprises a critical study, in chronological sequence, of major works by major authors, including Chaucer, Spenser, Shakespeare, Milton, Pope and Wordsworth, plus a major novel.
Offered jointly by Haverford and Bryn Mawr, with sections on both campuses.
- 183a The Art of Poetry L-2, E-1** J.C. Ransom
(Also called General Programs 183a)
Offered in 1978-79 and alternate years.
- 190a,b Introduction to Creative Writing E-2, L-1** J. Walker
 Three kinds of imaginative writing; experiments in poetry, short fiction, and short plays (including movie scenarios) are encouraged. This course serves as a preface to more advanced writing at Bryn Mawr College and at Haverford. Open to a small number of Haverford freshmen as an alternative to the required Freshman Writing Seminar. Enrollment limited: this semester course may not be repeated for credit.
- 192a Fiction Writing E-2, L-1** Staff
Offered at Bryn Mawr College.
- 193b Advanced Fiction Writing E-2, L-1** Staff
Offered at Bryn Mawr College.
- 195b Verse Composition E-2, L-1** K. L. Stapleton
Offered at Bryn Mawr College.
- 198a Playwriting and Production E-2, L-1** R. H. Butman
Offered at Bryn Mawr College.
- 198b Advanced Playwriting and Production E-2, L-1** R. H. Butman
Offered at Bryn Mawr College.
- 201a Chaucer: *The Canterbury Tales* L-2, H-1** R. B. Burlin
Offered at Haverford.
- 201b Chaucer: *Troilus and Criseyde* and *Minor Poems* L-2, H-1** S. G. Malard
 Early lyrics and dream poetry (*Book of The Duchess, House of Fame, Parliament of Fowls*) and the later masterpiece, *Troilus and Criseyde*. Background reading in *Romance of the Rose* and Boethius' *Consolation of Philosophy*.
- 209b Medieval Narratives L-2, V-1** R. B. Burlin
Offered at Bryn Mawr College.

- 210a Literature of the English Renaissance (I) L-2, H-1** *A. W. Satterthwaite*
 A critical study of the literature of the Tudor age.
Offered in 1977-78 and alternate years.
- 210b Literature of the English Renaissance (II) L-2, H-1** *A. W. Satterthwaite*
 A critical study of Elizabethan and Jacobean drama to the closing of theatres in 1642.
Offered in 1977-78 and alternate years.
- 212b Renaissance Poetry L-2, V-1** *E. J. Hedley*
Offered at Bryn Mawr College.
- 225a Shakespeare: Histories and Comedies L-2, H-1** *S. G. Malard*
 Extensive reading in Shakespeare's plays. This course does not duplicate, but complements, English 225b.
- 225b Shakespeare: Tragedies and Romance L-2, H-1** *J. E. Kramer*
Offered at Bryn Mawr College.
- 233a The Age of Milton L-2, V-1** *E. S. Rose*
 The poetry and selected prose of John Milton, whose literary career forms the backbone of the course. Classicist, scholar, linguist, musician, Christian humanist, poet, political rebel and activist, Milton produced masterpieces in all the major classical genres, not merely in epic. Selected works by other poets and prose masters of the century are introduced at appropriate points.
Offered in 1977-78 and alternate years.
- 240a Restoration and Early Eighteenth-Century Literature L-2, V-1** *P. M. Briggs*
Offered at Bryn Mawr College.
- 252a The Romantic Movement L-2, V-1** *A. Kaier*
Offered at Bryn Mawr College.
- 254a The Victorian Period L-2, H-1** *J. A. Lester*
 A study of major achievements in English literature of the 19th century, with attention to major authors and works, and to the cultural milieu of the period as it shapes and gives direction to this literature.
- 256b G. M. Hopkins and A. C. Swinburne L-2, H-1** *A. W. Satterthwaite*
 A close study of the two poets. The complete poetry of Gerard Manley Hopkins, and liberal selections from his Notebooks and Letters. Selections from Swinburne's poetry in relation to Hopkins and the climate of their time.
Offered in 1978-79 and alternate years.

Fine Arts

345 Experimental Studio (Advanced Drawing) E-2, L-1

F. Janschka

Drawing as an independent art form. Line as a dominant composition factor over color. All drawing media and watercolor, tempera and acrylic paints. Prerequisite: Haverford Fine Arts 231 or 241 or Bryn Mawr Fine Art 225.

Offered at Bryn Mawr College.

371a, b Analysis of the Visual Vocabulary: Painting and Sculpture since World War II L-3

C. Stegeman

(Also called General Programs 371a, b)

An illustrated lecture and discussion course aiming at developing the visual sense; at establishing a link of understanding between things seen and perceived, and concepts; at analyzing and understanding the meaning of art; at knowing and evaluating the individual expression of artists of the last twenty-five years. Enrollment limited to 50.

481a, b Independent Study E-2, L-1

Staff

This course gives the advanced student the opportunity to experiment with concepts and ideas and to explore in depth his talent. Prerequisite: consent of the instructor.

499 Senior Departmental Studies E-2, L-1

Staff

In this course the student reviews the depth and extent of his experience gained, and in so doing creates a body of work giving evidence of his achievement. At the end of the senior year the student is expected to produce—in essence—a one-man show of his work.

French

Professor **Bradford Cook**

Professor **Marcel M. Gutwirth**, *Chairman*

Associate Professor **Patrick McCarthy**¹⁰

Instructor **Kathryn E. Slott**⁹

Admission of new students to all French courses except 001 is contingent upon placement examinations administered by the Department prior to the opening of such courses.

Students who might profitably spend their junior year in France are encouraged by the Department to apply for admission to the institutions sponsoring foreign study groups.

The program in French is designed to give the student some facility in handling the French language by elucidation and review of fundamentals, by a progressive course of reading, and by constant practice in hearing, speaking, and writing French. Close scrutiny of style and structure, of moral and artistic intentions, orients the study of the masterpieces of French literature, which the student is then ready to approach, toward a heightening of his perception of artistic achievement, an enlargement of his understanding of both heart and mind. Reading in the original of the works of major figures such as Pascal, Molière, Balzac, Flaubert, Proust, moreover, will perfect acquaintance with some of the best in Western culture.

MAJOR REQUIREMENTS French 201a, 202a, 202b, 203b, 311a, b and 490b.

Supporting courses to be arranged in individual conference with the major supervisor.
Comprehensive examination.

REQUIREMENTS FOR HONORS Honors in French will be awarded on the basis of consistently distinguished work in the literature courses—including at least one Independent Study course—and a grade of 90 or better on the comprehensive examinations. High Honors will be determined by a further oral examination.

001 Introduction to French Language and Thought

Staff

Pronunciation and intonation; grammar, with oral and written exercises; reading, in the second semester, of easy texts of literary merit. This course is not open to freshmen who have had more than two years of high-school French.

101 Intermediate French E-2, L-1

Staff

Training in the language pursued on the basis of a sampling of works designed to acquaint the student with the range of French thought and letters, from François Villon to the present; grammar review, *dictées*, short written compositions, classes conducted in French. Prerequisite: French 001 or satisfactory performance on a placement test.

Freshman Seminars

Under the direction of the Committee on General Programs: **H. Glickman**, *Chairman*.

Every Haverford College freshman is required to complete a Freshman Seminar and a Writing Seminar during his first year at the College, except under those special circumstances where the English Department permits the student to meet this requirement in an alternative way described below. These seminars are designed to provide a unique educational experience for the student at the beginning of his college career. Each aims to encourage critical reading, logical thinking, rigorous discussion, and effective writing in relation to a coherently defined topic. Most freshmen are randomly assigned to either a Freshman Seminar or a Writing Seminar in the first semester, with seminar assignments reversed in the second semester. Exceptions to random first semester seminar assignment are made by the Freshman Writing Seminar Committee.

Freshman Seminar Program

A group of not more than fourteen freshmen meet regularly with an instructor to explore a coherent topic of study. The course is designed to be interdisciplinary in its approach by providing an opportunity for exploration, presentation, and learning across traditional departmental boundaries rather than providing a formal introduction to a particular department, and to help students develop speaking and writing skills. Seminar topics are chosen to meet a wide variety of student and instructor intellectual interests. To the extent that is possible within the limitations of class size, students are assigned to a seminar on the basis of their preference. Faculty and topics, drawn from all divisions of the College, change each semester and are announced at the time of registration. Examples of topics offered in past seminars include:

Comparative Mythology; North America and Africa; Uses of the Imagination; The Stalin Purges and Soviet Literature; The Individual and His Society in the Modern Novel; Game Theory and the Analysis of Political Conflict; The Dialogue: Ancient and Modern; Unsolved and Unsolvable Problems from Greek Mathematics; Utopias and Communal Societies; Literature of the Ghetto; The Self; The Eight Ages of Man; The Environmental Crisis; The Epic Journey; Political Conflict in Antiquity; China and India in Transition; Gods and Games; The Play-Element in Religion; The Literature of Protest and Identity in Modern Africa; The Scientist as Revolutionary; Arthurian Literature and Music; Politics Through Literature; The Year 1200; Existentialist Images of Man.

Each Freshman Seminar meets twice a week for 1½ hours for group discussion of assigned readings. In addition, groups of no more than four students meet regularly with the instructor to read and examine student papers. Although each seminar makes its own arrangements for these tutorials, every student is expected to participate in at least four tutorial sessions during the semester. The quality of each student's work is indicated by a pass-or-fail grade and a written evaluation.

Freshman Writing Seminar

Professor Alfred W. Satterthwaite, *Chairman* and Assistant Professor Joanne Hutchinson

Like the Freshman Seminar, the Writing Seminars are designed to provide intensive study in a series of small group discussions with an instructor and no more than twelve students. However, this seminar places greater emphasis on articulate, coherent communication in writing than do the Freshman Seminars.

Each Writing Seminar meets twice a week for one hour of group discussions of the assigned readings, with instructors who are usually members of the English Department. In addition, each student writes an essay of at least 500 words in alternate weeks, as well as a longer paper of at least 1500 words at the end of the semester. The six short papers are read and discussed by the instructor and the other students in weekly tutorials consisting of no more than four students. Particular emphasis is placed upon logical thinking and clear written expression. Grading consists of a brief written evaluation and a numerical grade; unless the student requests that the numerical grade be entered, the official transcript records only whether the course was passed or failed.

For a limited number of students English 190a or 190b (Introduction to Creative Writing) may replace the Writing Seminar, or English 015r (Readings in English Literature) may substitute for both the Freshman Seminar and Writing Seminar. Further, a small number of students who complete a Freshman Seminar during the first semester will be exempt from the requirement of taking a Writing Seminar in the second semester. These students, selected by the English Department on the basis of the exceptional quality of their written work in the first semester Freshman Seminar, have the option of taking either a second Freshman Seminar, a Writing Seminar, or choosing from other courses available in the Haverford-Bryn Mawr curricula. Finally, those students completing a Writing Seminar in the first semester who are judged by the English Department and the instructors of the Writing Seminars to need additional work in writing will be required to take a second Writing Seminar in the spring semester.

General Programs

The courses in this program are under the direction of the Committee on General Programs: Professor Harvey Glickman, *Chairman*.

These courses are offered by members of the various Departments of the College with a distinct focus upon the student who is a non-major. They may be thoroughly introductory in approach and undirected toward further work in the major; or, in another mode entirely, they may attempt to bring the insights and techniques of one discipline to bear on the problems important to another. They attempt to introduce students to intellectual experiences which diverge from the ones they might otherwise choose. They have no prerequisites except where explicitly stated.

003a Topics in Modern Biology III: Microbes and Man N-3

M. Santer

(Also called Biology 003a)

An analysis of the discoveries in the fields conventionally known as microbiology and genetics; in the 20th century they converged, the microbes becoming the biological vehicles for revealing the nature of the genetic material. The historical background to the work of Watson and Crick and their work on DNA is examined, together with the modern work on the manipulation of genetic material, i.e., "genetic engineering," and the social and ethical implications of the revolution resulting from molecular biology.

011a Introduction to Music E-2, L-1

T. Brooks

(Also called Music 011a)

A study of all the elements involved in the making of music including aural vocabulary, principal musical forms, historical considerations and performance practices; extensive outside listening and preparation of an independent project in conjunction with class work; visiting performers. Enrollment limited to 25.

012b Survey of Music History L-2, H-1

J. H. Davison

(Also called Music 012b)

A historical survey of the development of musical thought from the plainsong era to contemporary idioms. This course complements General Programs 011a but may be taken without it.

013b Aggression S-2, N-1

S. I. Perloe

(Also called Psychology 013b)

Aggressive behavior in man and other animals studied from evolutionary and psychological perspectives. Theories about instincts, emotion, learning, motivation, frustration and conflict are examined in a search for the determinants of aggressive behavior. Freud's psychoanalytic theory is also discussed. No prerequisites: not open to students with previous college courses in Psychology.

101b Biology: A Behavioral View N-2, E-1

D. Kessler

*(Also called Biology 101b)**Four hours: three lectures and one laboratory period.*

An introductory course using behavior and the themes of evolution and adaptation as a unifying framework to integrate diverse areas of biology. The origin of life and species, Mendelian genetics, ecology, social behavior, sensory and endocrine physiology, cell biology and development are considered. Laboratories using the light microscope include observations of chromosomes, genetic experiments with fruit flies, and several behavioral projects.

110b Experiments on the Nature of Existence V-2, N-1

D. G. Miller

(Also called Physics 110b)

A study of experiments which have converted certain philosophic issues into scientific questions. Experimental procedures are compared with the visual perception of the artist. The physical meaning of identity is measured against the insights of the existentialist. Works by Leibniz, Einstein, Picasso, Scheler, Feynman, Nabokov and Lederman stimulate discussions, papers and individual conferences. No prerequisites.

117a Conservation, Symmetry and Linearity N-2, A-1

W. C. Davidon

(Also called Physics 117a)

The historical, experimental and theoretical development of three basic concepts in 20th century physics: conservation laws, including conservation of energy, momentum and electric charge; symmetries of physical systems, both relativistic and Newtonian; and the principle of linearity, or superposition, which in quantum physics relates discrete particles to continuous waves. No use is made of calculus; geometric and algebraic methods are used instead.

*Offered in 1977-78 and alternate years.***119b Athenian Civilization in the Fifth Century H-2, V-1**

N. G. L. Hammond

(Also called Classics 119b)

An integrated study of the history, literature, philosophy, religion, art and architecture, politics, social structure and myths of Athens at the zenith of her intellectual and spiritual powers; critical readings in primary sources and supplementary modern texts.

120b Rome from Caesar to Nero H-2, V-1

D. Gillis

(Also called Classics 120b)

An integrated study of the history, literature, philosophy, religion, art and architecture, politics, social structure and myths of Rome in the final stages of the Republic and the early years of the Empire; critical readings in primary sources and supplementary modern texts.

159a Sociology of the Family S-3

H. Whitehead

(Also called Sociology and Anthropology 159a)

Cross-cultural perspectives on family structure, followed by a series of controversial questions concerning the Western family: development of the bourgeois family; ethnic diversity in the American family, with special reference to blacks; Marxist and feminist perspectives; ideological biases in social science. Readings from Levi-Strauss, Freud, Aries, Mitchell, Parsons, Gutman, Genovese, Schneider and Smith.

General Programs

183a The Art of Poetry L-2, E-1

(Also called English 183a)

J. C. Ransom

Offered in 1978-79 and alternate years.

201 Interpretation of Life in Western Literature L-2, V-1

R. H. Butman

A study in their entirety of selected great imaginative presentations of attitudes toward life, drawn from all the major literatures of the West in the best available translations. To promote student involvement in the issues raised, the course is conducted exclusively by discussion. First semester: from Homer to Dante; second semester: from Njál's Saga to Solzhenitsyn.

205 History of Film L-2, V-1

W. Paul

An introductory course concentrating on the various technical aspects of feature-length filmmaking and how they serve to create a unique form of expression. First semester presents a survey from the silent period to the early seventies, from D. W. Griffith to Antonioni. Critical papers on the films.

207b Seminar in Classical Studies L-2, V-1

N. G. L. Hammond

(Also called Classics 207b)

Topic for 1978: The Theater of Dionysus.

The plays of Aeschylus, Sophocles, Euripides and Aristophanes. Selected secondary sources on Athenian drama. Enrollment limited to 25 upperclassmen.

208a Seminar in Classical Studies L-2, V-1

F. C. Kohler

(Also called Classics 208a)

Topic for 1977: Hero and Heroine

From the hero and heroine of classical myth to those of modern fiction. The relationship of the heroic and anti-heroic central characters to the type of fiction in which they appear. Male and female stereotypes; central character types in such modes of popular fiction as the picaresque tale and the modern "superhero" comic book. Emphasis on classical drama and the western novel.

209b Topics in Chemical Science N-2, A-1

R. M. Gavin

(Also called Chemistry 209b)

An examination of selected topics related to chemistry, intended only for students with minimal background in science. Students are invited to propose topics for consideration, which will be announced prior to registration; "Air and Water Pollution" and "Evolution and Chemistry" have been considered in the past. Not open to students who have taken Astronomy, Biology, Chemistry or Physics courses numbered 107 or higher with the exception of Physics 110a and 117b.

211a Theories of Personality S-2, V-1

R. V. Wagner

(Also called Psychology 211a)

Intensive examination and extensive reading of Freudian, existentialist and Rogerian theories of personality, supplemented by consideration of other major approaches; emphasis on mastering the theoretical constructs and relationships by means of a variety of teaching procedures including lectures, small group discussions, and panels. Students have the opportunity to participate in a number of optional experiential practicums that illustrate some of the concepts, therapeutic and research methods discussed in the seminar. Enrollment limited to 30.

215a Modern Critics of Christianity V-2, S-1*R. F. Thiemann**(Also called Religion 215a)*

An examination of the philosophical, sociological and psychological criticisms of Christianity arising out of Christianity's encounter with modernity. Readings in Feuerbach, Freud, Marx, Nietzsche and others.

Offered in 1978-79 and alternate years.

216b African Civilization S-2, L-1*W. MacGaffey*

Selected problems in the study of African history, culture, politics, literature and art; each student completes an individual study project.

228b Historical Introduction to the Common Law H-2, S-1*J. S. Beckerman**(Also called History 228b)*

Consideration of the main institutions, procedures and doctrines of English law in its formative stages, from their origins to early modern times.

237a War and Peace in German Literature L-2, H-1*L. Elmore**(Also called German 237a)*

An analysis of German literary treatments of the problems of war and the pervasive longing for peace, from early heroic sagas to 20th century fiction, with special emphasis on the Thirty Years' War, the Age of Bismarck, and the First and Second World Wars. Readings include: the *Nibelungenlied*, Grimmelshausen, Heine, Kleist, H. Mann, Remarque, Brecht and Grass.

237b Goethe and Beethoven L-2, H-1*J. R. Cary, S. F. Glickman**(Also called Music 212b and German 237b)*

An introduction to selected works of two creative minds who dominated their age and synthesized its artistic philosophies, Classicism and Romanticism. The course examines Goethe and Beethoven in relation to each other and to some of their Classical and Romantic contemporaries. All texts will be read in English. No previous music instruction is required.

240b History and Principles of Quakerism H-2, V-1*E. B. Bronner**(Also called History 240b and Religion 240b)*

Study of the Quaker Movement in relation to other intellectual and religious movements of its time and in relation to problems of social reform. The development of dominant Quaker concepts is traced to the present day and critically examined. The course is designed for non-Friends as well as for Friends. Open without prerequisite to sophomores, juniors and seniors.

Not offered in 1977-78.

258b The Development of the Novel L-2, V-1*J. A. Lester**(Also called English 258b)*

An exploration of the range and power of the novel as a literary genre, as manifested in the 19th and 20th centuries primarily in the British tradition, but in novels of France, Russia, Germany and America as well. Concentrated reading (twelve novels) and frequent writing, creative and critical.

266b Interdisciplinary Course in American Studies*J. C. Ransom, S. H. Shumer**(Also called English 266b)*

General Programs

267a Introduction to American Folklore L-3

J. Ashmead

(Also called English 267a)

American folk poetry, songs, ballads, spirituals, myths, jokes, gestures, tales, games, shouts and hollers, dramas—with special reference to various ethnic folklore influences on writers such as Cooper, Melville, Twain, Langston Hughes, Ellison. Review of folklore theories and methods of collection, from Haverford's Gummere to present structural and cultural linguistic approaches.

280b Tragedy L-2, V-1

S. G. Malard

(Also called English 280b)

A study of both "accepted" tragedies and works on the fringes of the genre. Although philosophical issues arise, the primary emphasis of the course is literary. Readings include Aristotle's *Poetics*, the *Book of Job*, works by Aeschylus, Sophocles, Euripides, Marlowe, Shakespeare, Melville, O'Neill, Beckett, LeRoi Jones (Imanu Amiri Baraka).

281a Comedy L-2, V-1

E. S. Rose

The theory and practice of comedy and the comic in readings from Aristophanes to J. S. Synge, including a comic opera. Definition and theory are explored in the writings of a variety of modern critics.

282b The Scandinavian North: The Icelandic Sagas H-2, L-1

R. Lúman

(Also called Religion 282b)

A discussion of Viking life at home and abroad, of a major medieval literary tradition, of the life of the Icelandic Commonwealth and its associated problems as reflected in the Icelandic Sagas. Readings include *Njals Saga*, *Laxdaela Saga*, the *Vinland Sagas*, *Egils Saga Skallagrímssonar* together with critical and historical literature.

Offered in 1978-79 and alternate years.

313a Views of Love and Jealousy L-2, V-1

B. Cook

The study of mainly British and European works of literature, in which great writers have tried to analyze and dramatize the nature—birth, growth, mechanics, death—of love and/or jealousy in adult human beings. Typical works to be read are *St. Matthew*; Vergil's *Aeneid* (Book IV, *Dido and Aeneas*); Shakespeare's *Othello*; Racine's *Phaedra*; Hardy's *Jude the Obscure*; Proust's *Swann's Way*; Laclos' *Dangerous Acquaintances*; Mauriac's *The Desert of Love*. Prerequisite: consultation with the instructor.

315a The Renaissance L-2, V-1

M. Gutwirth

A reading, in English, of master works of European literature from Petrarch to Cervantes, with a consideration of both the artistic and the scientific innovations of the age. The explosive renewal of European consciousness from the early 15th to the late 16th century forms the subject of discussion, as reflected in the writings of figures ranging from Erasmus to Shakespeare and in undertakings as diverse as Calvin's *Institutes* and the *Quijote*. Colleagues in history, science and religion will be invited to join in appropriate sessions; a bus trip to the Metropolitan Museum is envisaged. Prerequisite: consultation with the instructor.

321a Problems in Public Management S-2, V-1

F. Fisher

(Also called Political Science 321a)

Based on cases, the seminar explores, from the operating viewpoint of a middle-level government official, problems in implementing government programs: e.g. reorganizing agencies, handling

the press, bureaucratic incentives, conflicts of interest, the use of the lawyer in government, decentralized authority, coordination of different programs, etc. Prerequisite: One year of social science.

324 Philosophy: East and West V-2, V-1

S-Y. Hsieh, P. J. R. Desjardins

(Also called Philosophy 324)

A review in historical context of the development of the major schools of ancient Chinese thought from their emergence in roughly 600 B.C. until 221 B.C. The course begins with a discussion of technical terms of Chinese philosophy and traces these terms and other basic ideas in texts of Confucianism, Mohism, and Taoism as well as in the writings of lesser-known philosophers such as Tsou Yen and Yang Chu. Relations to Western philosophical themes are considered.

371a,b Analysis of the Visual Vocabulary: Painting and Sculpture since World War II L-3

C. Stegeman

(Also called Fine Arts 371a,b)

An illustrated lecture and discussion course aiming at developing the visual sense; at establishing a link of understanding between things seen and perceived, and concepts; at analyzing and understanding the meaning of art; at knowing and evaluating the individual expression of artists of the last twenty-five years. Enrollment limited to 50.

387a Literary Theory and Criticism L-2, V-1

E. S. Rose

(Also called English 387a)

A course for those who wish to reflect on the nature and function of literature and of literary study. Theory and practice are considered together. Selected poems, plays, and stories are a part of the course, along with theoretical statements and applied criticisms. Four views of literature—as mimetic, rhetorical, imaginative, and semantic—are explored in as many theories and approaches. Classic and modern texts are used.

Offered in 1977-78 and alternate years.

470a,b Interdepartmental Faculty-Student Seminar (Distribution code varies with topics)

Seminars involving a number of faculty and students from different departments, based on a series of visiting lecturers and joint faculty-student meetings. Each student will use the common material of the lectures and meetings as the basis for a more specialized project carried out under the supervision of a member of the faculty.

First semester, 1977-78: New Perspectives in the Third World S-3 *V. Dixon and others*

Inquiries into theories, research methodologies and strategies developed to cope with the special problems of Third World peoples in the United States and abroad.

Second semester, 1977-78: To be announced.

Geology (at Bryn Mawr College)

Associate Professor **Maria Luisa B. Crawford**, *Chairman*

Associate Professor **William A. Crawford**

Associate Professor **Lucian B. Platt**

Associate Professor **William Bruce Saunders**²

Assistant Professor **George C. Stephens**

Instructor **Robert G. Eby**

Assistant **Susan Hardee**

Assistant **Virginia M. Sague**

Assistant **Roger Stoffregen**

Assistant **Thomas R. Watters**

The Department seeks to make students more aware of the physical world around them. The subject includes a study of the materials of which the world is made, of the physical processes which have formed the earth, especially near the surface, of the history of the earth and its organisms, and of the various techniques necessary to investigate earth processes and history. Geology borrows widely from its sister sciences, combining many disciplines into an attack on the problem of the earth itself. An essential part of any geologic training lies outside the classroom, in field work.

MAJOR REQUIREMENTS: Geology 101a and b, 201a and b, 202a, 204b, one advanced unit, the Senior Conference, and one full-year course in two of the following departments: Chemistry, Mathematics, Physics. Students may meet some of the major and allied requirements by advanced standing or placement examinations. A student who wishes to follow a career in geology should plan to attend a summer field course, usually following the junior year. A third course from one of the allied subjects is also strongly recommended.

Allied Subjects: Biology, Chemistry, Physics, Mathematics, Statistics; Astronomy, Anthropology, Archaeology, or Economics are accepted in special cases.

REQUIREMENTS FOR HONORS Qualified students are admitted to Honors Work on the recommendation of the Department. This consists of one unit of field or laboratory work on an independent research problem.

101a Physical Geology N-2, E-1

Staff

A study of materials and structures of the earth; surface and near-surface processes such as the action of streams, glaciers and volcanoes and of the features to which they give rise. Three lectures, three hours of laboratory or field work a week, plus a one-day field trip on a Saturday.

101b Historical Geology N-2, E-1

Staff

The history of the earth from its beginning and the evolution of the living forms which have populated it. Three lectures, three hours of laboratory or field work per week, and a three-day field trip in the spring. Prerequisite: Geology 101a or its equivalent.

201a Crystallography and Mineralogy N-2, E-1*M. L. Crawford*

The study of geometrical crystallography and crystal chemistry; descriptive and determinative mineralogy. The emphasis is on the relation between the physical properties of crystalline substances and their structures and chemical constitution. Three lectures, four hours of laboratory a week. Prerequisite: Geology 101a and b or consent of instructor.

201b Optical Mineralogy and Mineral Paragenesis N-2, E-1*M. L. Crawford, W. A. Crawford*

Further work on determinative mineralogy, emphasizing the use of the petrographic microscope; the occurrence and typical associations of minerals. Three lectures, four hours of laboratory a week. Prerequisite: Geology 201a.

202a Invertebrate Paleontology N-2, E-1*R. G. Eby*

A systematic survey of animal groups in geologic time, with emphasis on their morphology, ecology and evolution. Three lectures, three hours of laboratory a week. Prerequisite: Geology 101a and b or permission of instructor.

204b Structural Geology N-2, E-1*L. B. Platt*

Recognition and description of deformed rocks; introduction to mechanics and patterns of deformation. Three lectures and three hours of laboratory or field work a week. Prerequisite: Geology 101a and b or permission of instructor.

205b Introduction to Geochemistry N-2, E-1*W. A. Crawford*

Not offered in 1977-78.

206b Stratigraphy N-2, E-1*L. B. Platt*

Principles, theory, and criteria for recognition of processes of formation of sedimentary rocks. Environments of deposition, basic stratigraphic relations, and interpretations of specific lithotopes. Three lectures a week, field trips. Prerequisite: Geology 202a.

221a Oceanography N-3*R. G. Eby*

A study of the geological, biological, chemical and physical characteristics of the oceans and how these characteristics interact. Three lectures a week. Prerequisites: Geology 101a and b or consent of the instructor.

222b Environmental Geology N-2, E-1*G. C. Stephens*

Study and evaluation of geological processes as they relate to mineral resource use and conservation, land-use planning and urbanization. Three lectures, three hours of laboratory or field work a week. Prerequisite: Geology 101a or consent of instructor.

302a Advanced Paleontology N-2, E-1*W. B. Saunders*

Principles, theory and application of various aspects of paleontology such as evolution of interest. Three lectures, three hours of laboratory a week (with occasional augmentation by field work). Prerequisite: Geology 202a or consent of instructor.

German

001 Beginning German

Staff

Five class meetings per week in sections of approximately ten students. The first semester covers the entire grammar, and particularly stresses understanding, speaking and writing of carefully controlled compositions. The second semester emphasizes reading and expansion of basic language skills.

002 Intermediate German E-2, L-1

Staff

Three class meetings per week in sections of approximately twelve students. The curriculum emphasizes specific grammatical difficulties and vocabulary building. Literary texts are used as the basis of further language instruction and for the acceleration of reading speed. Guided essay writing and textual interpretation supplement progress in the language. Prerequisite: German 001 or a satisfactory performance on a placement test.

101 Readings in German Literature L-2, E-1

L. Elmore

A reading of representative works by Lessing, Goethe, Schiller, the Romantics, Huch, Thomas Mann, Kafka, Brecht, and Dürrenmatt. Prerequisite: consent of the instructor.

201a Advanced Training in the German Language E-2, L-1

J. R. Cary

Careful attention to the development of fluency in speaking and writing German. A variety of styles and readings forms the basis of conversation, with a constant emphasis on an articulate and varied oral and written expression. Prerequisite: consent of the instructor.

202a Goethe and Schiller L-2, V-1

J. R. Cary

A study of representative works by the two greatest writers of German classicism. Prerequisite: German 101 or consent of the instructor.

202b Romanticism L-2, V-1

J. R. Cary

A study of major writers of the Romantic movement in German literature, including Novalis, Tieck, Brentano, Hoffmann, and Eichendorff. Prerequisite: German 202a or consent of the instructor.

352b Modern German Literature L-2, V-1

L. Elmore

An exploration of the most important and innovative modern authors with an examination of stylistic and thematic trends in poetry, prose and drama, including some discussion of modern literary-critical perspectives. Prerequisite: German 202b or equivalent.

Offered in 1978-79 and alternative years.

353b German Lyric Poetry L-2, H-1

L. Elmore

A study of the development of German poetry and poetics from the baroque period to the present. Lectures and readings emphasize interpretation and analysis of individual works by representative poets, such as Gryphius, Klopstock, Goethe, Möricke, Hofmannsthal, Rilke, and Celan. Prerequisite: German 202b or consent of the instructor.

Offered in 1977-78 and alternate years.

356a Advanced Topics in German Literature L-2, V-1*J. R. Cary*

Topic for 1977-78: "Prague, Vienna, Zurich." A selection of representative writers from three German literary centers outside Germany: Rilke, Kafka (Prague); Grillparzer, Schnitzler, Hofmannsthal (Vienna); Keller, Frisch (Zurich). Prerequisite: German 202b or consent of the instructor.

480 Independent Study*Staff*

This course offers the student of German literature an opportunity to probe more deeply and more independently into an area of personal particular interest. The nature of the course therefore varies to suit the needs of the individual student.

490 Senior Departmental Studies L-3*Staff*

Conference on selected writers. Members of the Department share in conducting the conferences, which focus on the works of authors included on the comprehensive examination.

COURSES OFFERED IN ENGLISH**237a,b Topics in German Culture L-2, H-1***(Also called General Programs 237a,b)*

A framework of courses dealing with German literary and cultural issues.

Topics for 1977-78 are:

237a War and Peace in German Literature*L. Elmore*

An analysis of German literary treatments of the problems of war and the pervasive longing for peace, from early heroic sagas to 20th century fiction, with special emphasis on the Thirty Years' War, the Age of Bismarck, and the First and Second World Wars. Readings include: the *Nibelungenlied*, Grimmelshausen, Heine, Kleist, H. Mann, Remarque, Brecht and Grass.

237b Goethe and Beethoven*J. R. Cary, S. F. Glickman**(Also called Music 212b and General Programs 237b)*

An introduction to selected works of two creative minds who dominated their age and synthesized its artistic philosophies, Classicism and Romanticism. The course examines Goethe and Beethoven in relation to each other and to some of their Classical and Romantic contemporaries. No previous music instruction is required.

COURSES OFFERED AT BRYN MAWR COLLEGE**301a History of the German Language***N. C. Dorian***308a Middle High German***S. Jaeger*

History

- | | | | |
|------|---|----------|----------------------------|
| 206b | Roman Empire | H-2, S-1 | |
| 207a | Latin America | H-2, S-1 | R. Scott |
| 225 | Europe since 1848 | H-2, S-1 | M. M. Dunn |
| 230 | Afro-American History | H-2, S-1 | S. M. Poppel |
| 272b | Modern Jewish History | H-2, S-1 | W. Holbrook |
| 290 | French Civilization | | S. M. Poppel |
| 300b | American City in 20th Century | H-2, S-1 | M. Guggenheim, M. Gutwirth |
| 302 | France 1559-1661 | H-2, S-1 | M. D. Spiezman |
| 303a | Recent American History: Indo-China War | H-2, S-1 | J. H. M. Salmon |
| 308a | Jews in the Middle Ages | H-2, S-1 | A. P. Dudden |
| 314 | History of Scientific Thought | N-2, H-1 | C. Brand |
| 315a | Victorian and Edwardian Britain | H-2, S-1 | J. M. Oppenheimer |
| 320a | Holland's Golden Age | H-3 | P. S. Lachs |
| 328a | Colonial Towns | H-2, S-1 | J. Tanis |
| 335a | Blacks in the American City | H-2, E-1 | M. M. Dunn |
| 335b | West African Leadership | H-3 | W. Holbrook |
| 360 | Tudor and Stuart England | H-3 | W. Holbrook |
| 380a | Topics in the Enlightenment | H-2, N-1 | E. R. Foster |
| | | | J. M. Oppenheimer |

History of Art (at Bryn Mawr College)

Professor **Charles Dempsey**, *Chairman*

Professor **Charles Mitchell**

Professor **James E. Snyder**

Assistant Professor **Dale Kinney**¹

Assistant Professor **Steven Z. Levine**

Professor of Fine Art **Fritz Janschka**

Dean of The Graduate School of Arts and Sciences and Professor of Classical and Near Eastern Archaeology and of History of Art **Phyllis Pray Bober**

Assistant **Perri Lee Roberts**

Assistant **Therese Dolan Stamm**

The Department regularly offers an introductory course, a series of general intermediate courses and more concentrated advanced half-courses and instruction on special topics to majors in their senior year. The program is open also to undergraduates of Haverford College.

MAJOR REQUIREMENTS At least four units of course work in art history, normally including History of Art 101 and always one unit of advanced course work, together with the Senior Conference and two units of allied work. Intermediate courses with supplementary work may sometimes be counted as advanced at the discretion of the Department.

REQUIREMENTS FOR HONORS Invitation of the Department

Students contemplating a major in History of Art are strongly advised to consult the Department as early as possible in their college careers, especially with regard to language preparation.

Allied Subjects: Archaeology, Greek, Latin, History, modern languages; others in consultation with the Department. Students are especially encouraged to undertake, in consultation with the Department, allied work in modern languages, which are essential for advanced work in History of Art.

101 Introduction to Art History

Staff

An introduction to the methods and scope of history in the field of Western art from medieval to modern times.

210 Early Medieval and Byzantine Art

D. Kinney

Not offered in 1977-78.

211 Art of the Later Middle Ages

J. E. Snyder

212 Renaissance Art

C. Mitchell

213 Baroque Art

C. Dempsey

214 Modern Art

S. Z. Levine

History of Art

321a Traditions in Dutch Painting, 1450-1650

J. E. Snyder

322b Donatello

C. Mitchell

323b Nicolas Poussin

C. Dempsey

324a Problems in Film Theory

S. Z. Levine

399 Senior Conference

Members of the department hold regular conferences with senior majors on their special subjects. The evaluation is in three parts, each lasting three hours:

1. An examination to test knowledge of works of art,
2. A general examination on the history of art,
3. An examination on a special topic.

Italian (at Bryn Mawr College)

Assistant Professor **Nancy Dersofi**¹

Assistant Professor **Nicholas Patruno**, *Director*

The aims of the major are to acquire a knowledge of the Italian language and literature and an understanding of Italian culture and its contribution to Western civilization. Majors in Italian are urged to spend the junior year in Italy or to study in appropriate summer schools in Italy or in the United States.

MAJOR REQUIREMENTS Italian 102a, 201a, 301, 303a, b and at least one other unit of advanced work. For students who enter the College with Italian, proper substitutions will be made. In all courses students are urged to use tapes available in the Language Laboratory.

Allied Subjects include any other language or literature, history, history of art, philosophy, music, political science; with departmental approval, any other field allied to the student's special interests.

REQUIREMENTS FOR HONORS On the recommendation of the Department a student may undertake Honors work in Italian. Students work in a special field adapted to their own interest under the direction of the Department.

001 Italian

N. Patruno

A practical knowledge of the language is acquired through hearing, speaking, writing and reading, going from concrete situations to the expression of abstract ideas and with a gradual introduction to the reading of Italian literature.

101 Intermediate Course in the Italian Language E-2, L-1

Staff

Readings from selected Italian authors and topics assigned for composition and discussion; conducted entirely in Italian.

102a Advanced Courses in the Italian Language L-3

N. Patruno

Advanced work in composition and critical examination of literary texts.

201a Novel and Poetry of Modern Italy L-2, H-1

N. Patruno

Offered in 1977-78 and alternate years.

204a Foscolo, Leopardi and Manzoni L-2, H-1

N. Patruno

A study of the Italian Romantic movement as reflected in these writers.

Offered in 1978-79 and alternate years.

204b Literature of the Nineteenth Century L-2, H-1

N. Patruno

A study of the literary currents following the Romantic movement; special attention given to *Decadentismo* and *Verismo*.

Offered in 1977-78 and alternate years.

Italian

- 207b Dante, Petrarch and Boccaccio (in translation) L-2, V-1** *N. Patruno*
A study of major intellectual and artistic currents in Medieval and Early Renaissance Italy through these writers' main works.
Offered in 1978-79 and alternate years.
- 301 Dante L-2, H-1** *Staff*
Principal emphasis on the *Divina Commedia*, with some attention to Dante's minor works and the literary currents of the Middle Ages in Italy.
Offered in 1978-79 and alternate years.
- 303a Petrarca, Boccaccio and the Early Humanists L-2, H-1** *N. Dersofi, N. Patruno*
Offered in 1977-78 and alternate years.
- 303b Literature of the Italian Renaissance L-2, H-1** *N. Patruno*
Offered in 1977-78 and alternate years.
- 305a Arcadia and Enlightenment L-2, H-1** *N. Dersofi*
A study of some of the works of Vico, Metastasio, Goldoni, Gozzi, Alfieri and Parini seen in the context of 18th century social custom and theatrical tradition.
- 305b History of the Italian Theatre L-2, H-1** *N. Dersofi*
Offered in 1977-78 and alternate years.
- 399 Senior Conference L-2, H-1**
In the first semester weekly meetings devoted to the study of special topics in Italian literature chosen by the students, to be evaluated by an oral examination in January. In the second semester each senior prepares, under the direction of the instructor, a paper on an author or a theme which the student has chosen. At the end of the year students must demonstrate knowledge of the development of Italian literature by either an oral or written examination, according to their preference.

Mathematics

Provost **Thomas D'Andrea**, *Acting Chairman*

Professor **Dale H. Husemoller**³

Visiting Associate Professor **Curtis Greene**⁸

Assistant Professor **Daniel Asimov**⁶

Assistant Professor **Douglas J. Howe**⁶

The aims of courses in Mathematics are: (1) to promote rigorous thinking in a systematic, deductive, intellectual discipline; (2) to present to the student the direction and scope of mathematical development; (3) to foster technical competence in mathematics as an aid to the better comprehension of the physical, biological, and social sciences; and (4) to guide and direct the Mathematics majors toward an interest in mathematical research.

The following sequences are open to qualified entering students: 113a, 114b; 116; 113a, 118b; 113a, 114b 118b; 119a, 220b; 221a, 222b. Students are sectioned according to their previous background. Those with the equivalent of one (or respectively two) semesters of college calculus may be admitted to Mathematics 119a (or respectively 221a) upon consent of the Department.

The more advanced courses cover work in the fields of analysis, algebra, and topology. The student majoring in the Department extends his studies into all of these areas.

A program consisting of Mathematics 113a, 114b, 220b and 221a is especially suited to the needs of the physical sciences, while Mathematics 118b deals with those concepts of statistics, probability, differential equations, and small computers which are fundamental to the biological and social sciences. Mathematics 116b is especially appropriate for the general liberal arts student.

MAJOR REQUIREMENTS Mathematics 221a, 222b, 331a, 332b, 333a, 334b, 335a, 336b, 399c, and either 361a, 362b or 363a, 364b. Recommended collateral courses are Physics 111a, 112b, 213a, 214b; Philosophy 107a, 327b; Economics 203a or b; or, for prospective actuaries, Economics 111a or b and 112a or b.

Prescribed parallel reading on the history and general principles of mathematics. Two comprehensive examinations.

It is recommended that facility in reading French and German be acquired early in the college course.

REQUIREMENTS FOR HONORS Honors will be granted to those senior Mathematics majors who, by means of their course work and the comprehensive examinations, have given evidence of their ability, initiative, and interest in the study of mathematics. High Honors will be awarded to the exceptionally able student.

Mathematics

113a One-Variable Calculus A-2, N-1

D. Asimov, D. J. Howe

Differentiation and integration of functions of one variable; Taylor's formula and series; elementary differential equations.

114b Multi-Dimensional Calculus and Linear Algebra A-2, N-1

D. J. Howe

Vectors in n -space; partial derivatives; multiple integrals; theorems of Green and Stokes; divergence theorem; introduction to linear algebra. Prerequisite: Mathematics 113a.

116b Topics in Mathematics A-2, N-1

A survey of topics in mathematics, including number theory, set theory, topology, geometry, probability, and game theory, with emphasis on the historical and philosophical aspects of mathematics.

Not offered in 1977-78.

118b Probability and Statistics A-2, N-1

Staff

Introduction to probability with applications to statistics; least squares approximations; general properties of distribution functions; the relevance of differential equations, and small computers. Prerequisite: Mathematics 113a.

119a Calculus and Analysis A-2, N-1

Staff

Review of calculus; series; partial derivatives and multiple integrals; introduction to linear algebra. Open to students with a background in calculus, but not open to those who have taken Mathematics 113a or 114b. Prerequisite; two semesters of high school calculus or consent of the instructor.

220b Elementary Complex Analysis A-2, N-1

Staff

Line integrals; complex derivatives; Cauchy theorem and residue calculations; elementary conformal mapping; harmonic functions. Prerequisite: Mathematics 119a or 114b.

221a Linear Algebra A-2, N-1

D. H. Husemoller

Groups; rings; matrices; linear equations; modules; homomorphisms; vector spaces; linear transformations; eigenvalues and eigenvectors; inner-product spaces; multilinear algebra. Prerequisite: Mathematics 114b or 119a or consent of the instructor.

222b Analysis I A-2, N-1

Staff

The real number field; rigorous development of differential and integral calculus; metric spaces; fundamental theorem of ordinary differential equations. Prerequisite: Mathematics 221a.

331a, 332b Analysis II, III A-3

D. Asimov

Differential calculus on Euclidean space; inverse and implicit function theorems; the Riemann and Lebesgue integrals; manifolds; Stokes theorem on manifolds. Prerequisites: Mathematics 221a and 222b.

333a, 334b Algebra A-3*D. J. Howe*

Topics from field theory, ideal theory of commutative rings, group theory, structure of rings.
Prerequisite: Mathematics 221a.

335a, 336b Topology A-3*Staff*

General topology. Homotopy theory; singular homology theory. Prerequisites: Mathematics 221a and 222b.

363a Special Topics in Analysis and Geometry A-3*D. H. Husemoller*

Elementary solutions to differential equations, linear equations with constant co-efficients and the second order differential equation with variable co-efficients; an introduction to partial differential equations. This course, designed for the general natural science student, is open to sophomores, juniors and seniors. Students who might normally take Astronomy 211b could take this course. Prerequisite: Mathematics 113a-114b or 119a.

364b Special Topics in Analysis and Geometry A-3*Staff*

Topic and prerequisites for 1978 to be announced.

382b Topics in Discrete Mathematics*C. Greene*

Topic to be announced.

399c Senior Departmental Studies A-2, L-1*Staff*

Review and correlation of the various branches of mathematics. Content varies to fit student needs. This course may be taught as a seminar, a tutorial, or a lecture course, depending on student needs.

Music

Professor **John H. Davison**, *Chairman*
Associate Professor **Tamara Brooks**
Assistant Professor **Harold Boatrite**⁶
Assistant Professor **Sylvia F. Glickman**⁹
Assistant Professor **Temple Painter**

Resident Chamber Music Group

Joseph De Pasquale⁶
Robert De Pasquale⁶
William De Pasquale⁶
Sylvia F. Glickman⁶
George Harpham⁶

The program in Music is designed to develop the skills needed to increase an understanding of musical forms and their historical framework. A major in Music provides the foundation for further study leading to a career in music; it can take many forms but, whatever the particular project, the interaction of theory-composition, music history and performance is stressed. Students may also design a special major program based on individual needs, to be worked out with departmental advisors.

The theory program includes composition at all levels. It stresses the formation of a strong technique based on knowledge of the great styles of the past, which can then lead to experimentation with the various twentieth-century styles, including jazz. Two or three concerts of student compositions are given every year, underlining the department's stress on the creative side of music.

The music history program at Haverford is supplemented by courses offered at Bryn Mawr, Swarthmore, and the University of Pennsylvania, which may be taken for major credit. The advanced music history seminar offers a different topic each semester.

Performance ensembles, consisting of auditioned members of the College and surrounding community, include the Haverford-Bryn Mawr Symphony, Chamber Orchestra, Chorale, Chamber Singers, and the Haverford Chamber Music Program. Students may participate in these extracurricularly or for laboratory credit in Music 015c, 016c and 017c. These ensembles present, on campus and on tour, a rich variety of new and old music every year, including some of the masterpieces of the literature. Student jazz and progressive rock groups, faculty composers' concerts, concerts by the Artists-in-Residence, and visiting artists invited under the auspices of the Distinguished Visitors

Program and the Bryn Mawr Friends of Music further enrich the active campus musical life.

Though Haverford does not have a conservatory-type program, it recognizes and encourages private vocal and instrumental study with the many excellent instructors to be found in the Philadelphia area, and gives credit for such study under Music 117a, 118b. Members of the faculty will assist students in finding private instructors who meet their special needs.

MAJOR REQUIREMENTS Four semesters of theory-composition, normally 113a, 114b, 213a, 214b; two music history semesters, in which it is recommended that 021b or Bryn Mawr 101 be included; two half-credit years (two semesters credit) in performance practice, drawn from 015c, 016c and 017c; and Music 490b. Substitutions in the performance practice requirement are possible in consultation with the Department. In addition, each Music major takes two further semester courses in a chosen area of concentration, a total of eleven required semester courses. Music 490b is normally taken in the student's final semester and leads to a comprehensive examination: three hours in theory, three in music history, and three optional hours in composition. The theory examination includes dictation, sight-singing and keyboard harmony as well as written exercises. The Music major, if not already proficient at the keyboard, should take steps to ensure such proficiency by the senior year.

REQUIREMENTS FOR HONORS The Honors candidate must perform satisfactorily in all required courses for Music majors, and submit (a) in the case of specialization in composition, an orchestral or other composition of considerable stature showing creative talent as well as technical craftsmanship, and hence being worthy of a public performance, or (b) in the case of specialization in music history, a successfully completed project in musicological research, demonstrating mastery of the tools of this discipline, involving original thought, and showing ability in the creative interpretation of assorted materials bearing on a specific subject, or (c) for students proficient in voice or an instrument, the planning and presentation of a solo recital.

011a Introduction to Music E-2, L-1
(Also called *General Programs 011a*)

T. Brooks

A study of all the elements involved in the making of music including aural vocabulary, principal musical forms, historical considerations and performance practices; extensive outside listening and preparation of an independent project in conjunction with class work; visiting performers. Enrollment limited to 25.

012b Survey of Music History L-2, H-1
(Also called *General Programs 012b*)

J. H. Davison

A historical survey of the development of musical thought from the plainsong era to contemporary idioms. This course complements Music 011a but may be taken without it.

015c Seminar in Analysis and Performance of Chamber Music E-2, L-1

S. F. Glickman

Exploration of ensemble playing in small groups; score analysis, historical and interpretive reading, and practical application of performance principles through rehearsal and private chamber music coaching. Public performance required. Prerequisite: consent of the instructor. Fall semester: Classical Period.

Spring Semester: Romantic and Contemporary.

Music

016c Seminar in Analysis and Performance of Orchestral Literature E-2, L-1 *T. Brooks*

Study and performance of standard and contemporary literature for Chamber Orchestra. Class hours include lecture, score reading, analysis and research into musical/historical context of works to be performed; rehearsal hours involve the application of that study to performance. Prerequisites: audition and consent of the instructor. Enrollment limited to those instrumentalists required to perform the year's repertory.

017c Seminar in Analysis and Performance of Choral Literature E-2, L-1 *T. Brooks*

Study and performance of standard and contemporary literature for chorus. Class hours include lecture, score reading, analysis and research into the musical/historical context of works to be performed; rehearsal hours involve the application of that study to performance. Three on-campus performances are presented per semester. Prerequisites: audition and consent of instructor. Enrollment limited to a balanced chorus of 40.

110b Introduction to the History of Jazz L-2, H-1 *Staff*

A historical survey of the origins, phases, and recent directions of jazz as the most significant area of Afro-American music; visiting lecturers. Offered in 1977-78 and alternate years.

113a-114b Elementary Music Theory E-2, L-1 *J. H. Davison, H. Boatrite*

The basic materials of music: melody, scales, intervals, chords, meter and rhythm. Counterpoint in two and three parts and harmony in four parts are implemented by ear-training, dictation, sight-singing, and analysis. Previous instruction or experience in some aspects of music is desirable. Enrollment is limited.

115a, 116b Seminars in Analysis and Performance Practice E-2, L-1 *Staff*

Regular performance in a choral, orchestral, or chamber-music group under the Department of Music, and classwork involving analysis of the music being performed by these groups in any given semester, as well as related repertoire, with attention to ear-training and to problems of performance practice especially as involving baroque ornamentation. Prerequisite: consent of the constructor.

115a not offered in 1977-78.

117a, 118b Private Music Study E-3

Private lessons (instrumental, vocal) to be arranged with the Department Chairman. Academic credit may be granted for private instrumental or vocal study under the following circumstances:

- 1) The instructor must be approved by the Provost and the Music Department Chairman, to whom he will submit a detailed report of the student's work at the end of each semester.
- 2) The student must demonstrate accomplishment in a chosen field of study at an audition before members of the Music faculty, or at a public recital.

A short paper pertaining to the repertoire studied may be required. Prerequisite: One semester of study in a music-theory or music-history course or the equivalent. The lessons will be at the student's own expense; in case of financial need, loans from the College may be arranged.

210b Seminar in Jazz History L-2, H-1 *J. H. Davison*

An intensive study of certain important later jazz artists such as John Coltrane and Ornette Coleman, with special emphasis on student projects and reports. Limited to 24 students.

Prerequisite: Music 110b or 113a, or some practical jazz experience.
Offered in 1978-79 and alternate years.

211a, 212b Seminars in Music History L-2, H-1

The detailed study of certain epochs in music history or of the works of individual composers having special significance in the history of music. The topics of Music 211a, 212b will be altered from year to year so that these courses may be repeated for credit, with change of content. Prerequisite: Music 011b or 012a or the equivalent.

Topics for 1977-78:

211a: Viennese Classicism

S. F. Glickman

Emphasis on Mozart and some of his contemporaries. The forms, style and musical language of the period are explored through historical reading and records, and through analysis and performance.

211b: Goethe and Beethoven

J. R. Cary, S. F. Glickman

(Also called German 237b and General Programs 237b)

An introduction to selected works of two creative minds who dominated their age and synthesized its artistic philosophies, Classicism and Romanticism. The course examines Goethe and Beethoven in relation to each other and to some of their Classical and Romantic contemporaries. All texts will be read in English. No previous music instruction is required.

213a, 214b Advanced Theory and Composition E-2, L-1 *J. H. Davison, H. Boatrite*

A continuation of Music 113a-114b, involving ear-training, keyboard harmony, sight-singing, analysis, and composition. The first semester includes study of fugue and of strict counterpoint as exemplified in the vocal style of the 16th century. In the second semester pieces are written in the forms of the chorale-prelude, suite, and sonatina. Successful student compositions will be performed at demonstration concerts. Prerequisite: Music 113a-114b.

216b History and Analysis in Performance L-2, E-1

T. Brooks

A study of the application of historical knowledge and analytical techniques to the problems of performance. Representative pieces of music literature from various historical periods are researched, analyzed, discussed and performed. Prerequisites: Music 113a-114b or consent of the instructor.

313a Seminar in Twentieth Century Music Theory and Practice E-2, L-1

H. Boatrite

Practical emphasis upon analysis of works of representative composers such as Hindemith, Schönberg, and Bartók. Prerequisite: Music 214b.

314b Seminar in Twentieth Century Composition E-2, L-1

H. Boatrite

The student works with expanded tonal structure as well as with problems inherent in the adaptation of traditional forms to 20th century idioms.

480a,b Independent Study-Projects in Music

Staff

490b Senior Departmental Studies

Staff

Philosophy

- 306b Early Modern British Philosophy V-3** *R. J. Bernstein, L. A. Kosman*
A selection of primary works from among those of Bacon, Locke, Berkeley, and Hume.
Prerequisite: Philosophy 101 or consent of the instructor.
Offered in 1978-79 and alternate years.
- 307a Kant V-3** *R. J. Bernstein*
A study of selected major texts with special emphasis on Kant's theoretical and moral philosophy.
Prerequisite: Philosophy 101 or consent of the instructor.
Offered in 1978-79 and alternate years.
- 308b Hegel V-2, H-1** *R. J. Bernstein*
A study of a selection of the primary works of Hegel. Prerequisite: consent of the instructor.
Offered in 1977-78 and alternate years.
- 309a Nineteenth Century Philosophy V-2, L-1** *R. J. Bernstein*
A selection of primary works from among those of Marx, Feuerbach, Kierkegaard and Nietzsche.
(For 1977-78 this course is restricted to senior Philosophy majors.) Prerequisite: Philosophy 101
or consent of the instructor.
- 321b Twentieth Century Continental Philosophy V-3** *J. Thompson*
A selection of primary works from among those of Husserl, Heidegger, Sartre and Merleau-
Ponty.
Not offered in 1977-78.
- 322a Analytic Philosophy V-2, A-1** *F. J. Davis*
A study of the central issues in the development of analytic philosophy in England and America.
- 323b Wittgenstein V-2, A-1** *A. Gangadean*
A study of Wittgenstein's *Tractatus* and/or *Philosophical Investigations*, Prerequisite:
Philosophy 101 or consent of the instructor.
Not offered in 1977-78.
- 324 Philosophy: East-West V-2, L-1** *S-Y. Hsieh, P. J. R. Desjardins*
(Also called *General Program 324*)
A review in historical context of the development of the major schools of ancient Chinese thought
from their emergence in roughly 600 B.C. until 221 B.C. The course begins with a discussion of
technical terms of Chinese philosophy and traces these terms and other basic ideas in texts of
Confucianism, Mohism, and Taoism as well as in the writings of lesser-known philosophers such
as Tsou Yen and Yang Chu. Relations to Western philosophical themes are considered.
- 325b Indian Philosophy V-3** *A. Gangadean*
A study of major developments in classical Indian philosophy; principal Upanishads, Bhagavad-
gītā, Vendānta-Sūtra, etc. Prerequisite: Philosophy 101 or consent of the instructor.
Not offered in 1977-78.

326a Metaphysics and Epistemology V-3*A. Gangadean*

A critical examination of selected philosophies of being and knowledge.
Not offered in 1977-78.

327b Advanced Logic A-3*W. C. Davidon*

A study of the capabilities and limitations of algorithms for proving or refuting conjectures formulated in a first order predicate logic. Topics include the Godel completeness and incompleteness theorems, decidable and undecidable theories, and the use of computers for proof searches. Prerequisite: consent of the instructor.

328b Philosophy of Logic and Language V-2, A-1*A. Gangadean*

An investigation of the nature and structure of language from a logical point of view. The theory of meaning is approached from a variety of points of view including syntactic, semantic, and pragmatic perspectives. Prerequisites: Philosophy 101 and Philosophy 107a or consent of the instructor.

Not offered in 1977-78.

329b Philosophy of Science V-2, N-1*R. J. Bernstein*

A study of issues raised by the sciences concerning the nature of scientific explanation, the role of laws, theories, observation, and experiment in science. Readings from Nagel, Hempel, Carnap, Popper, Kuhn and Feyerabend. Prerequisite: consent of the instructor.

340a Ethics V-3*R. Desjardins*

A study of some of the central issues in ethics including the distinction of fact and value, the "is" and the "ought" and the status and justification of ethical norms. Prerequisite: a previous course in Philosophy or Religion, or consent of the instructor.

341b Social and Political Philosophy V-2, S-1*R. J. Bernstein*

A critical examination of philosophical issues concerning human political and social life. Such issues as the nature of social reality, the relation of theory and practice, and the status of social and political norms are explored. Prerequisite: Philosophy 101 or consent of the instructor.

342a Aesthetics V-2, L-1*L. A. Kosman*

A study of some of the central philosophical issues raised by art, particularly literature and the visual arts. Such issues as literary meaning, artistic judgments and evaluation, and the nature and status of the aesthetic object are explored in relation to classical and contemporary discussions. Prerequisite: Philosophy 101 or consent of the instructor.

343a Contemporary Philosophic Problems V-3*Staff*

Problems in contemporary philosophy selected for intensive investigation vary from year to year. Prerequisite: consent of the instructor.

344b Topics in the History of Philosophy V-3*Staff*

Specialized problems in the history of philosophy selected for intensive examination vary from year to year. Prerequisite: consent of the instructor.

Philosophy

398a, b Senior Discussion Leaders V-3

Senior philosophy majors receive one course credit for supervised teaching in the Philosophy 101 lecture-discussion course.

399b Senior Spring Seminar V-3

The aim of this seminar is to aid the student in writing his senior essay. Students are expected to present topics for critical discussion and evaluation by other majors.

480 Independent Study

Individual consultation with independent reading and research. Prerequisite: consent of the instructor.

COURSES OFFERED AT BRYN MAWR COLLEGE

100a History of Western Thought H-2, V-1	<i>J. M. Ferrater Mora</i>
101a Greek Philosophy V-2, H-1	<i>Staff</i>
102a Problems in Philosophy V-2, H-1	<i>G. L. Kline</i>
103b Logic A-3	<i>G. Weaver</i>
211a Epistemology V-3	<i>R. H. Gaskins</i>
221b Ethics V-3	<i>G. L. Kline</i>
231a Plato: Early Dialogues H-2, V-1	<i>T. M. Taft</i>
312a Philosophy of History V-3	<i>G. L. Kline</i>
314b Existentialism V-3	<i>J. M. Ferrater Mora</i>
330a Kant V-2, H-1	<i>J. M. Ferrater Mora</i>

Physical Education

Dana W. Swan, II, *Chairman and Director of Athletics*

Penelope C. Hinckley, *Coordinator of Women's Athletics*

Staff: Thomas Donnelly, David Felesen, Martin Gilbert, R. Henri Gordon, Frederick Hartmann, Stanley Jarocki, Margaret Johnston, Theodore Keyser, Kamran Rashid Khan, Richard O. Morsch, Anthony J. Zanin

College Physician: William W. Lander, M.D.

Since Physical Education is an integral part of the total educational impact Haverford seeks to make on its students, the College maintains a broad program of intercollegiate, intramural, and instructional activities. The aim of this program is to provide each student with an opportunity for athletic activity at a level of intensity matching interest and ability.

The Physical Education Department stresses the promotion of physical fitness and the development of sportsmanship and community spirit. The athletic program as a whole is concerned with individual student's development, enjoyment, and growth within the framework of group endeavor and shared responsibility.

Intercollegiate sports at Haverford are designed for those students who wish to make a commitment to disciplined and competitive athletics. The College expects to be competitive in its schedule of events within the Middle Atlantic Conference and with other comparable institutions.

The intercollegiate program consists of twelve varsity teams in soccer, cross-country, basketball, wrestling, fencing, winter track, lacrosse, baseball, golf, tennis, track, and cricket, and five junior varsity squads in soccer, basketball, baseball, lacrosse, and tennis.

The College supports a relatively broad and flexible program of intramural and instructional activities. The emphasis within these activities is on sound instruction, enjoyable participation, and an increase in students' proficiency. The Department places special emphasis on providing facilities for, and instruction in, sports with lifetime participation value. Each student is offered the chance for a successful athletic experience, regardless of previous athletic background or innate ability.

The intramural program offers an organized recreational experience from which the student may also derive some of the rewards and satisfactions of competitive team play. Intramural leagues are regularly conducted in soccer, touch football, basketball, volleyball, and softball.

The instructional program features a variety of activities organized according to ability and experience and taught in small sections with a maximum of individual attention. Sound instruction and practice in basic skills,

Physical Education

mixed with competition with students of comparable skills, aid in attainment of proficiency. Instructional classes are conducted in golf, tennis, billiards, first aid and personal safety, running techniques and training, yoga, karate, body-building (weight training), swimming (for beginners only), badminton, handball, and fencing.

The availability of Physical Education courses at Bryn Mawr College in such areas as modern dance, archery, horseback riding, and life-saving and water safety, adds another dimension to the Department's offerings.

All students at Haverford, unless excused for medical reasons, are required to participate in some areas of the physical education program during the major portion of their first two years in College. For physical education purposes the academic year is divided into four quarters of which students must successfully complete six within the first two years in order to remain at the College, or must make satisfactory arrangements with the chairman of the Physical Education Department for deferred completion. A swimming test must also be passed. No student will be permitted to graduate without satisfying these requirements, which are designed to assure exposure to a program from which students may choose wisely those forms of activity which will promote physical welfare and recreational satisfaction during College and beyond.

Evidence of satisfactory physical condition (see p. 150) is required by the Department before any student is admitted to any aspect of the program. A swimming test is given to all entering students, and remedial swimming instruction is offered.

The outdoor facilities include: Walton Field for touch football, lacrosse and track with a 440-yard oval and a 220-yard eight-lane straight-away cinder track; 4½-mile cross-country course within the campus limits; the Class of '88, '22 and Merion Fields—which are used for soccer in the fall and softball in the spring; a skating pond; Cope Field for cricket; the Class of '16 Field used for baseball in the spring; eleven tennis courts, six of which are all-weather; a driving range with green and sandtraps for golf practice, and the privileges of Merion West Course for the varsity golf team.

Indoor facilities include the gymnasium, Alumni Field House, the John A. Lester cricket pavilion, and the new men's locker facility. The basement of the gymnasium contains women's locker facilities, a swimming pool, and weight rooms; a basketball court is on the main floor, with one-wall handball and badminton courts.

Alumni Field House, donated by alumni and friends of the College in 1957, provides extensive facilities for additional athletic activities. Included are a seven-lap-mile track and areas for field events, a 120' by 120' indoor dirt

“playing field,” a batting cage for baseball and cricket, nets for golf, two basketball courts, and two tennis courts. Spectator seating capacity exceeds 1000.

PROGRAM

The intercollegiate program consists of schedules in 12 sports; participation in them may be substituted for the physical education requirement. The following table summarizes the sports and physical education activities available. Special programs may be arranged with the permission of the Department.

<i>Intercollegiate</i>		<i>Instructional and Intramural</i>	
Fall:	Soccer Cricket Cross Country	Golf *Soccer *Touch Football	Tennis **Modern dance **Life-saving
Winter:	Basketball	Badminton	Karate
I	Fencing	*Basketball	*Volleyball
II	Wrestling	Handball	Weight training
	Winter Track	First Aid	**Modern dance
		Personal Safety	Yoga
		Billiards	**Water Safety
Spring:	Baseball	Golf	Tennis
	Cricket	Karate	**Modern dance
	Golf	Yoga	**Life-saving
	Lacrosse	*Softball	
	Tennis		
	Track		

*Intramural competition available.

**At Bryn Mawr College.

Physics

Professor **William C. Davidon**, *Chairman, first semester*

Associate Professor **Jerry P. Gollub**

Visiting Associate Professor **Robert H. Hartford**⁶

Associate Professor **Douglas G. Miller** *Chairman, second semester*

The Physics curriculum introduces students to concepts and methods which are now fundamental throughout the sciences. It provides opportunities for first-hand experimental investigations together with the study of those basic principles that have led to profound scientific, philosophical and technological developments in the 20th century.

Two courses, Physics 110b and Physics 117a, stress the relationship of physics to other disciplines and to society. These are one-semester courses without laboratory work or prerequisites.

Prospective science majors are advised to study some physics in their freshman or sophomore years because all contemporary sciences rely heavily on basic physical principles. Physics 111a and Physics 112b provide a foundation for other work in the sciences. These courses are sectioned on the basis of students' background in science and mathematics to match the needs and interests of various groups.

The Physics curriculum features a basic sequence of four introductory and intermediate courses which are required of all majors. Students planning graduate work in Physics will need five additional courses in Physics which are to be chosen in consultation with the Department. Students with interests in the interdisciplinary fields of astrophysics, biophysics, chemical physics, mathematical physics, philosophy of science, or medical science can base their studies upon a foundation of introductory and intermediate Physics courses.

Courses numbered 412 to 417 provide seniors, and in some cases juniors, with opportunities for work in areas closer to current frontiers in physics research than the 300-electives. The Department conducts a non-credit seminar for majors to review fundamental concepts and to discuss current developments in physics. Distinguished physicists are invited to the campus each year as part of the Philips program, and students and faculty take part in colloquia and seminars at Bryn Mawr College and other neighboring colleges and universities.

The senior year in the Physics Department features opportunities for a supervised teaching experience, as well as for research projects.

MAJOR REQUIREMENTS

1. Physics 111a, 112b, 213a and 214b.
2. Mathematics 113a and 114b or 119a; one additional semester of Mathematics.
3. Four additional 200- or 300-level courses in Physics. Two of these may be replaced by upper-level courses in Astronomy, Chemistry, Biology, Mathematics, or Philosophy, with approval from the major advisor.
4. One semester selected from Physics courses numbered 315 or 412 to 417.
Subject to the approval of the major advisor, Bryn Mawr College courses may be substituted for any of the above in meeting major requirements.

REQUIREMENTS FOR HONORS The granting of Honors in Physics will be based upon the quality of performance in course work, in the supervised teaching experience or a research project, and in Departmental seminars.

110b Experiments on the Nature of Existence V-2, N-1*D. G. Miller**(Also called General Programs 110b)*

A study of experiments which have converted certain philosophic issues into scientific questions. Experimental procedures are compared with the visual perception of the artist. The physical meaning of identity is measured against insights of the existentialist. Works by Leibniz, Einstein, Picasso, Scheler, Feynman, Nabokov and Lederman stimulate discussions, papers and individual conferences. No prerequisites.

111a, 112b Fundamental Physics N-2, E-1*W. C. Davidon, R. H. Hartford, D. G. Miller, R. B. Partridge**Three class hours and one laboratory period.*

An introduction to the basic concepts of physics which form the foundation of all the natural sciences: Newtonian mechanics and the conservation laws, thermal and statistical phenomena, electricity and magnetism, the special theory of relativity, electromagnetic waves and optics, quantum physics, and atomic and nuclear structure. No prerequisite.

117a Conservation, Symmetry and Linearity N-2, A-1*W. C. Davidon**(Also called General Programs 117a)*

The historical, experimental and theoretical development of three basic concepts in 20th century physics: conservation laws, including conservation of energy, momentum and electric charge; symmetries of physical systems, both relativistic and Newtonian; and the principle of linearity, or superposition, which in quantum physics relates discrete particles to continuous waves. No use is made of calculus; geometric and algebraic methods are used instead. No prerequisites.
Offered in 1977-78 and alternate years.

203b Electronics E-2, N-1*D. G. Miller**Two class hours and one laboratory period.*

Analogue and digital circuits and their used in real systems; concepts of computer programming; individual projects on data collection by a control computer. Prerequisite: Physics 112b.
Offered in 1977-78 and alternate years.

213a Electromagnetism, Optics and Waves N-2, E-1*D. G. Miller**Three class hours and one laboratory period.*

Electromagnetic theory and its application to optics. Topics include static electric and magnetic

Physics

fields, Maxwell's equations, radiation, wave propagation in media, Fourier analysis in optics, and the theory of diffraction and image formation. The laboratory consists of experiments in modern optics and electronics. Prerequisite: Physics 112b or consent of the instructor.

214b Introductory Quantum Mechanics N-2, E-1 *W. C. Davidon, R. H. Hartford*
Three class hours and one laboratory period.

Inference of quantum principles from experiment, algebra of symmetries and conservation laws, energy levels, intrinsic spin and quantum statistics, emission of light. Prerequisite: Physics 112b.

308b Advanced Mechanics of Discrete and Continuous Systems A-2, N-1
W. C. Davidon

Kinematics and dynamics of macroscopic systems, including the use of configuration and phase space, normal mode analysis of oscillations, descriptions of the motions of rigid and elastic bodies, and hydrodynamics. Mathematical methods, including aspects of the calculus of variations, linear algebra, elementary group theory and differential equations, are developed as needed. Pre- or co-requisite: a 300-level Physics course or, with consent of the instructor, advanced work in Chemistry, Astronomy or Mathematics.

309b Advanced Electromagnetic Theory A-2, N-1 *R. C. Hoyt*

Boundary value problems involving static electric and magnetic fields; electromagnetic waves and their applications. Mathematical methods are introduced as needed. Pre- or co-requisite: a 300-level Physics course or, with consent of the instructor, advanced work in Chemistry, Astronomy, or Mathematics.

Offered at Bryn Mawr College.

311a General Relativity and High Energy Astrophysics N-2, A-1 *K. Despain*
(Also called Astronomy 311a)

Development and application of the tensor calculus to a discussion of general relativity and certain current variants; review of observational and experimental evidence; consideration of problems of high energy astrophysics, particularly gravitational radiation and gravitational collapse. Prerequisites: Mathematics 113a and 114b, or 119a, and Physics 111a and 112b.
Offered in 1977-78 and alternate years.

312a Nuclear Physics N-2, E-1 *W. C. Davidon*

Properties of the deuteron, scattering theory, isotopic spin, nuclear models, pion-nucleon interactions. Prerequisite: Physics 214b.
Offered in 1978-79 and alternate years.

313b Particle Physics N-2, A-1 *D. G. Miller*

Classification of particles and unitary symmetry; scattering theory including relativistic kinematics; production and decay of unstable particles. Prerequisite: Physics 214b.
Offered in 1978-79 and alternate years.

314a Statistical Physics N-3 *J. P. Gollub*

Description of a system of many particles using quantum statistics; this is used to derive the laws of thermodynamics and statistical mechanics; study of the macroscopic thermal properties of gases, solids, and liquids. Prerequisite: Physics 214b or consent of the instructor.
Offered in 1978-79 and alternate years.

315b Laboratory in Condensed Matter Physics E-2, N-1*J. P. Gollub*

The use of cryogenics, optics, and computers in the study of condensed matter. The first half consists of experiments at very low temperatures on superfluid helium, superconductors, paramagnets, and metals, accompanied by background reading and discussion. The second half emphasizes the use of the PDP 11 minicomputer for analysis of scattered laser light. Experiments in this part of the course include studies of Brownian motion and phase transitions. Prerequisite: Physics 314a or Chemistry 305e.

Offered in 1978-79 and alternate years.

318a Atoms and Molecules N-2, A-1*D. G. Miller*

A study of non-relativistic quantum theory using algebraic methods. Structure and binding are discussed on the basis of experiments involving the absorption or scattering of laser light. Prerequisite: Physics 214b or consent of the instructor.

Offered in 1977-78 and alternate years.

412b Theoretical Physics A-2, N-1*W. C. Davidon*

A program of lectures, readings and independent work on current problems and methods in theoretical physics with emphasis upon applications of group theory to the study of symmetry in physics. Prerequisite: consent of the instructor.

415a Experimental Nuclear Physics E-2, N-1*D. G. Miller*

Two class hours and one laboratory period.

Lectures on beam production and particle detection for scattering and decay experiments; individual projects on experimental design and analysis. Prerequisite: Physics 203b.

Offered in 1978-79 and alternate years.

417a, b Research in Condensed Matter Physics E-2, N-1*J. P. Gollub*

Directed experimental research on a problem in the physics of condensed matter. Experiments include studies of the spectrum and intensity of light scattered from fluids, and both numerical and optical studies of hydrodynamic phenomena. Prerequisite: consent of the instructor.

450a, b Association in Teaching Basic Physics N-2, E-1*Staff*

Student association with staff in Physics 111a or 112b, involving leadership in recitation meetings and supervision of laboratory meetings. Open to seniors.

Political Science

Professor **Francis D. Fisher**

Professor **Harvey Glickman**, *Chairman*

Associate Professor **Robert A. Mortimer**¹

Associate Professor **Sidney R. Waldman**

Associate Professor **Sara M. Shumer**

Assistant Professor **Alexander Wilde**⁷

Lecturer **Adolphus L. Williams**¹

The Political Science curriculum is designed to give students an understanding of political organization and political forces in modern society, to provide knowledge and a basis for insight and judgment on the problems involved in the relationship of the individual to government, and of governments to one another. The broad areas of study include: analysis of political theory in relation to its institutional environment, comparison and appraisal of different types of governments and political organizations, American political behavior and institutions, and problems of international relations.

The courses are designed primarily for a liberal arts education and are intended to create intelligent and lasting interest and participation in the formulation of public policy. The training will also serve the needs of students contemplating scholarship and teaching in political science, as well as other professional careers such as law, journalism, and the public service.

In advanced courses, emphasis is placed upon individual research and analysis—practice in concept formation, location, organization, and presentation of data—and upon independent judgment.

Majors in Political Science are expected to understand the relationship of this field to other social studies, as well as to the purposes and methods of the social sciences as a whole. They are therefore expected to take supporting courses in Economics, History, Sociology, and Psychology.

MAJOR REQUIREMENTS To enter the Department: two one-semester courses, one from each of two fields selected from the 201-210 courses, which may be taken at either Bryn Mawr College or Haverford. The “fields” are: American Politics and Law (A); Comparative Politics (C); International Politics and Law (I); and Political Theory and Philosophy (T).

Departmental studies: Political Science 390b, 392b, and one of the following: Political Science 391a, 393a, 394a, 396a or 399a (at Bryn Mawr College). In addition, five courses in Political Science, distributed among three of the four areas of study: (1) comparative politics, (2) American politics, (3) international relations, and (4) political theory and political philosophy, which may be taken at Haverford or Bryn Mawr College as listed below.

Related Studies: Four courses outside of Political Science which are mutually integrated and related to the major. Some examples of possible interests around which the courses could cluster are: American or other area studies, political and social theory, international affairs,

environmental policies, urban affairs, or a specific social science discipline.

A general examination synthesizing major studies.

In the senior year majors enroll in a research seminar and in 392b. Association in Teaching (371a or 372b) is open to selected seniors. Juniors enroll in the junior seminar, 390b.

REQUIREMENTS FOR HONORS The award of Departmental Honors is determined on the basis of a thesis, an oral examination, the quality of course work, and performance in the general examination.

201a American Political Behavior (A) S-3

M. H. Ross

An examination of the forces shaping political behavior and values in the United States; particular attention to the processes of political socialization, public opinion formation, agenda building, decision making, and policy implementation.

(Offered at Bryn Mawr College)

202a or b American Political Institutions and their Dynamics (A) S-2, V-1

S. R. Waldman, A. Wilde

The dynamics of the political process as seen in the Congress, the Presidency, the executive bureaucracy, and the judiciary; consideration of democratic theory in the *Federalist Papers*, and the theories of Locke and Rousseau. Enrollment limited to 20.

203a Government and Politics in East Asia (C) S-2, H-1

M. T. Kennedy

An approach to modern Asian politics through a study of the major philosophic and institutional features of dynastic China and areas under Chinese cultural influence; India and Japan are considered for comparative purposes.

(Offered at Bryn Mawr College)

204b Twentieth Century China and India (I) S-3

M. T. Kennedy

A comparative examination of the politics of China and India in the 20th Century with special attention to the roles of nationalism and communism.

(Offered at Bryn Mawr College)

205a Government and Politics in Western Europe (C) S-2, V-1

C. E. Frye

A comparative analysis of the contemporary political systems of Great Britain, France and Scandinavia, with special reference to factors making for stable and effective democracy.

(Offered at Bryn Mawr College)

206a or b Comparative Government and Politics (C) S-2, H-1

H. Glickman

Introduction to the major forms of government in the world today—totalitarian, authoritarian, “polyarchic”—and their variations in selected prototypical political systems in Europe, Asia and Africa; emphasis on conditions for maintaining and changing forms of government; general interest in the connections between socio-cultural factors and political institutions. Enrollment limited to 20.

Political Science

- 207b Government and Politics in Western Europe (C) S-2, V-1** *C. E. Frye*
A comparative analysis of the contemporary political systems of Germany, Italy and the Soviet Union.
(Offered at Bryn Mawr College)
- 208a or b International Politics (I) S-3** *H. Glickman*
Introduction to the major problems and substantive trends in world politics, especially since World War II: Soviet-American confrontation, revolution in weapons technology, emergence of the "Third World"; exploration of patterns of conflict and agreement, the role of international organization and regional groupings; and theories of community-building. Enrollment limited to 20.
- 209a Western Political Theory (T) V-2, S-1** *S. M. Shumer*
- 209b Western Political Theory (T) V-2, S-1** *Staff*
(209b offered at Bryn Mawr College)
A study of fundamental problems of Western political thought, designed to introduce the student both to careful and critical reading of philosophical texts and to some of the important ways of formulating and answering central questions in political theory; readings from ancient and modern sources. Enrollment limited to 20.
- 211a The Soviet System S-2, H-1** *Holland Hunter*
(For course description see *Economics 211a*)
- 219a American Constitutional Law S-2, H-1** *A. Emdin*
A careful study of the constitutional rights and freedoms of the individual. Some of the areas discussed will include: (1) Freedom of Expression, (2) Right to Counsel, (3) The Free Exercise of Religion, and (4) Symbolic Expression.
Offered at Bryn Mawr College in 1977-78.
- 224b The American Presidency and the Bureaucracy S-3** *S. R. Waldman*
Examination of the institution of the Presidency in the past few decades, focusing on the ways the President relates to Congress, to others in the executive branch, to his party, and to the public. Prerequisite: Political Science 201a or 202a or b, or consent of the instructor.
- 227b American Political Theory V-2, S-1** *S. M. Shumer*
The study of the foundations of American politics through an exploration of the roots and development of American political thought and institutions and an analysis of their theoretical assumptions and implications. Prerequisite: Political Science 202a or b, or 209a or b, or consent of the instructor.
- 245b International Relations (Advanced) S-3** *Staff*
Examination of major theoretical problems, as well as substantive trends, in international politics. Particular use of systems theory in illuminating case studies drawn from the international arena of the years after World War II including the Soviet-American confrontation, the emergence of the "Third World," and the revolution in weapons technology. Prerequisite: Political Science 204b, or 208a or b or consent of the instructor.

246b International Organization S-3*R. A. Mortimer*

Examination of underlying patterns of community in international political systems and the possibilities for an emerging social consensus; survey of international organizations, such as the United Nations and regional groupings; attention to international settlement of disputes, notably in Africa and the Middle East. Prerequisite: Political Science 204b, or 208a or b or consent of the instructor.

Not offered in 1977-78.

256b Modern and Contemporary Political Theory V-2, S-1*S. M. Shumer*

Theory of the modern state with emphasis on Marx and selected 20th century theorists, Marxists and non-Marxists. Prerequisite: Political Science 209a or b or consent of the instructor.

321a Problems in Public Management S-2, V-1*F. D. Fisher*

(Also called General Programs 321a).

Based on cases, the seminar explores, from the operating viewpoint of a middle-level government official, problems in implementing government programs: e.g. reorganizing agencies, handling the press, bureaucratic incentives, conflicts of interest, the use of the lawyer in government, decentralized authority, coordination of different programs, etc. Prerequisite: one year of Social Science.

323a American Political Process: The Congress S-3*S. R. Waldman*

A functional and behavioral analysis of the policy-making process as it emerges in Congress, from the electoral process as it affects Congress, to the distribution of power and influence in Congress, and the relations of Congress with the Executive Branch. Prerequisite: Political Science 201a, or 202a or b, or consent of the instructor.

324b Suburban Politics Workshop S-3*H. Glickman*

Processes and policies in local politics in the neighborhood of Haverford and Bryn Mawr Colleges. Focus on individual field experience and research. Prerequisite: two courses in Political Science, and consent of the instructor.

325a American Pluralism in Fact and Theory S-2, V-1*S. M. Shumer*

An examination of the structure of political power in America. Readings include the pluralist theorists, various critics and case studies of the politics of those seeking to enter or change the structures of power. Prerequisite: Political Science 201a or b or 202a or b or consent of the instructor.

335a Comparative Politics of Modernization: Latin America S-2, H-1 *A. Wilde*

A study of changing institutional capabilities and purposes in political systems meeting the demands of social and economic modernization, with focus on Latin American states. Topics include: nationalism, models and theories of development, the role of the military, and certain policy issues. Prerequisite: any 200-level course in comparative politics or consent of the instructor.

Psychology

Professor **Douglas H. Heath**¹

Professor **Sidney I. Perloe**, *Chairman*

Visiting Associate Professor **Richard V. Wagner**⁶

Associate Professor **Thomas D'Andrea**

Assistant Professor **Mary J. Naus**

Assistant Professor **Douglas A. Davis**

The Psychology program, which is coordinated with that at Bryn Mawr College, is designed to give the student an understanding of the diverse empirical approaches to the study of behavior and experience, a knowledge of the psychological principles which have emerged from empirical research, and an acquaintance with the problems to which contemporary research is directed. The student is encouraged to make active use of his knowledge in two ways: first, by using courses to develop a working familiarity with experimental and naturalistic observation methods in psychology, ordinarily culminating in an individual research project in the senior year; second, by attempting to apply known psychological principles to an understanding of the behavior of individuals and groups in all areas of human endeavor. Students will have the opportunity to participate in experimental research in the laboratory, in clinical practicums in schools and mental hospitals, and in field work in other types of settings.

MAJOR REQUIREMENTS 111a (or 013b) or 208a; 112f and 113f, normally taken in the freshman or sophomore year; 200b or 201a, taken in sophomore or junior year (students planning graduate work in psychology should take both); 208a, 211a or 215b; 399.

Two additional advanced courses with prerequisites.

Corresponding courses in the Bryn Mawr Departments of Psychology and Education and Child Development are accepted as fulfilling the major requirements. Students who substitute Bryn Mawr Psychology 101 for Haverford's 111a, must enroll in 113f; they may omit 112f.

Students whose interests fall outside the scope of the major program in Psychology are encouraged to arrange interdepartmental or other special major programs. Final approval of such programs will rest with the Committee on Student Standing and Programs.

REQUIREMENTS FOR HONORS Honors will be awarded to majors who show exceptionally high attainment in their course work and whose theses are of superior quality. Candidates for Honors may be asked to take a written or oral examination.

013b Aggression S-2, N-1
(Also called *General Programs 013b*)

S. I. Perloe

Aggressive behavior in man and other animals studied from evolutionary and psychological perspectives. Theories about instincts, emotion, learning, motivation, frustration and conflict are examined in a search for the determinants of aggressive behavior. Freud's psychoanalytic

theory is also discussed. No prerequisites: not open to students with previous college courses in Psychology.

111a Introductory Psychology S-2, N-1 *T. D'Andrea, D. A. Davis, S. I. Perloe*
Three hours of lecture.

Selected core problems in the objective study of behavior and experience including the evolution of behavior, conditioning and learning, individual differences, emotion, motivation, psychoanalytic theory, perception and memory. Not open to students with previous college courses in Psychology.

112f Introduction to Psychological Research, E-1 *Staff*

An introduction to experimental design in human and animal research. Students work in small groups which define specific research problems, design research studies to test their hypotheses, analyze data using standard statistical and computer analyses, and prepare a comprehensive report of the research. Emphasis is upon the relationship between theory, experimental design, and data interpretation. Prerequisite: Psychology 111a or its equivalent, and either concurrent enrollment in Psychology 113f or consent of the instructor.

113f Introduction to Statistics in Psychology, A-1 *M. J. Naus*

A presentation of descriptive and inferential statistical techniques including: measures of central tendency, variability, linear regression and correlation as well as t-tests, analysis of variance, chi-square and other non-parametric tests. An introduction to the use of the computer in data analysis is provided. Prerequisite: Psychology 111a or its equivalent, and either concurrent enrollment in Psychology 112f or consent of the instructor.

200b Human Learning and Memory S-2, E-1 *M. J. Naus*
Two hours of lecture and three hours of laboratory.

Experimental and theoretical approaches to selected topics in the psychology of memory and thinking including such areas as attention, short- and long-term memory, problem solving, reading and comprehension, mnemonics, memory development, computer models of memory, memory physiology, the relationship between language and thought, and the psychopathology of memory. Prerequisites: Psychology 112f and 113f or the equivalent.

201a Learning Theory and Behavior N-2, E-1 *R. C. Gonzalez*
Three hours of lecture and three hours of laboratory.

Comparative studies of conditioning and selective learning: theories and learning; the evolution of intelligence. Prerequisites: Psychology 112f and 113f or the equivalent.
Offered at Bryn Mawr College.

202b Comparative Psychology N-2, S-1 *M. Yarczower*
Three hours of lecture.

The evolution of behavior: language, aggression, learning and social behavior studied in evolutionary perspective after brief introductions to the history of comparative psychology and to some perspectives of evolutionary study. Prerequisites: Psychology 112f and 113f or the equivalent.

Offered at Bryn Mawr College.

208a Social Psychology S-3

S. I. Perloe

A consideration of the individual aspects of social behavior with examination of the following topics: forming impressions of other persons; perceiving one's own abilities, opinions and emotions; the nature of social interaction; social attitudes, with emphasis on ethnic and political attitudes. Prerequisites: Psychology 111a or its equivalent, or consent of the instructor. *Psychology 208b, offered at Bryn Mawr College, is an equivalent course.*

211a Theories of Personality S-2, V-1

R. V. Wagner

(Also called General Programs 211a)

Intensive examination and extensive reading of Freudian, existentialist and Rogerian theories of personality, supplemented by consideration of other major approaches; emphasis on mastering the theoretical constructs and relationships by means of a variety of teaching procedures including lectures, small group discussions, and panels. Students have the opportunity to participate in a number of optional experiential practicums that illustrate some of the concepts, therapeutic and research methods discussed in the seminar. Enrollment limited to 30.

214b Psychological Issues in Education S-2, E-1

D. H. Heath

(Also called General Programs 214b)

Three hours of seminar and three hours of fieldwork.

The course has two purposes: (1) to introduce students to the principal psychological theorists and researchers whose work is related to education; specific issues may be examined in some depth, depending upon the interests of the class; (2) to learn how to create more effective educational environments for furthering educability by participating in the organization and conduct of the course and in an alternative type of school for at least half a day per week. Prerequisite: consent of the instructor. Enrollment limited to 20. *Not offered in 1977-78.*

215b Culture and Personality S-3

D. A. Davis

An introduction to personality psychology and the application of its theory and methods to the study of culture. Special attention is given to psychoanalytic theory and critical treatments thereof. Specific topics include: Cultural differences in personality development, interpretation of the symbolic content of culturally determined behaviors, "national character," psychobiography, and cultural variables in memory and cognition. Prerequisites: One introductory course in Psychology or Anthropology, or consent of instructor.

238b Psychology of Language S-2, N-1

T. D'Andrea

Concentration on the development of modern psycholinguistics, with discussion of such topics as semantics, the interpretation of language in terms of association theories, the relation between language and thinking, and the implications of recent work in generative grammars for a psychology of language. Prerequisite: Psychology 111a or its equivalent.

302b Physiological Psychology N-2, E-1

E. Thomas

Three hours of lecture and optional laboratory period.

An examination of the physiological basis of a wide range of psychological phenomena, including the role of the nervous system in learning, emotion, motivation, perception and thought. Prerequisites: Psychology 112f and 113f or the equivalent. Students wishing to take part in the laboratory must secure consent of the instructor. *Offered at Bryn Mawr College.*

306b The Psychology of Human Differences S-2, A-1

D. A. Davis

Problems of personality assessment as related to the investigation of cognition, memory and such variables as sex, race and social class. Prerequisites: an introductory Psychology course and Psychology 211a or 215b (which may be taken concurrently), or consent of the instructor.

309a Abnormal Psychology S-2, E-1

D. A. Davis

Three hours of seminar and three hours of fieldwork.

Review of major clinical and theoretical literature pertaining to the definition and treatment of important forms of neurosis and psychosis; working contact with victims of major psychopathology in a mental health setting. Students spend a minimum of three hours per week in one of several local hospitals or clinics assisting in the already existing therapy program. Prerequisites: Psychology 211a or 215b, and consent of the instructor.

310b Emotion S-2, N-1

S. I. Perloe

A discussion of the following aspects of emotion: its evolutionary significance, non-verbal communication, the perception of expressions, its psychological basis, relation to motivation, its cognitive determinants, and methodological problems involved in its study. Prerequisites: two semester courses in Psychology, at least one of which is Psychology 111a or its equivalent.

316b Seminar in Group Dynamics S-3

R. V. Wagner

Major contemporary approaches to the study of small human groups, with discussion of the following topics: group composition, group development, performance in groups, and leadership. The course covers both theoretical and experimental literature. It includes student participation in simulation of group phenomena. Prerequisite: Psychology 208a (or 208b at Bryn Mawr College), or consent of the instructor.

Offered only in 1977-78.

344b Growth of the Healthy Personality S-2, E-1

D. H. Heath

Three hours of seminar and three hours of fieldwork

Developmental problems from infancy through adulthood viewed from different perspectives, including psychosexual, Erikson's psycho-social learning, and Piaget's cognitive theories; discussion of healthy mastery of problems like sexuality, identity, responsibility, marriage, religion and death. A weekly practicum experience with children in local nursery schools for the first six weeks is followed by similar experiences in other field settings, including nursing homes and hospitals for the aged. Prerequisites: Psychology 211a or 215b and consent of the instructor.

Not offered in 1977-78.

351a, b Research Topics in Psychology E-2, S-1

Staff

Advanced level problems of hypothesis formation and definition, experimental design, data analysis, and report writing by means of closely supervised experimental research projects. Students must have selected the problem on which they wish to work before taking the course. They may enroll in Psychology 480 for half-credit as a means of preparing for their research project. Prerequisite: consent of the instructor.

399 The Senior Program E-2, S-1

Staff

Preparation of a senior thesis based upon original, empirical research. Seniors meet to discuss their research as well as to exchange views with visiting lecturers, and participate in at least one half-semester seminar unit on a current research topic given as part of the Senior Program at Haverford or as part of the Senior Conference at Bryn Mawr.

480 Independent Study

Staff

Students should normally plan to take this course for half-credit.

Religion

Associate Professor **Richard Luman**, *Chairman*
Assistant Professor **Ronald F. Thiemann**

The Department of Religion is concerned with the historical study of religious traditions in the archaic, ancient, classical and Judeo-Christian-Islamic West and with the philosophical study of religious thought, particularly in its modern forms of expression.

MAJOR REQUIREMENTS The exact structure of the student's program must be determined in consultation with the major advisor, whom the student chooses, in consultation with the chairman, from among the regular members of the Department. The program must include the following courses:

- a. Religion 101a or b; Religion 102a or b; and 399b.
- b. Seven additional half-year courses. Introductory courses (100 level) will not be accepted as satisfying this requirement. Two of these courses may, with Departmental permission, be *upper-level* courses in other Departments, including foreign languages. Also among the seven courses must be a two-course sequence drawn from among the following sets: (a) 201a, 202b; (b) 207a, 208b; (c) 235a, 236b; (d) 243a, 244b, 245a (two of three). Or, at Bryn Mawr College: (e) 207b, 208b; (f) 201a, 213b. Other advanced courses to complete the seven course total may be taken at either College.

Each student's program and record will be reviewed annually with the Department, in the first two weeks of the fall semester.

Final evaluation of the major program will consist of written work and oral examinations to be administered during the senior year in the context of the work for Religion 399b.

Where necessary for the major program, the Department strongly urges the study of appropriate foreign languages.

REQUIREMENTS FOR HONORS Honors in Religion are awarded on the basis of the oral part of the senior evaluation, and on work as juniors and seniors, with special emphasis on work in the Department. High Honors are awarded on the same basis, with the addition that special consideration shall be given to work done in independent study courses and seminars.

101a or b Religion in Traditional Culture H-2, V-1

Staff

An investigation of social, religious, and historical issues basic to understanding the traditional cultures of the ancient Near East, the Hellenistic world, and the Roman world, with attention to the three great Western religions and their literature: Judaism, Christianity and Islam.

One-semester course offered in each semester.

102a or b Religion in Modern Culture V-2, S-1

R. F. Thiemann

An examination of religious expression and the critique of religious thought arising out of the Enlightenment. Limit: 40 per section.

One-semester course offered in each semester.

201a, 202b History of Western Religious Thought and Institutions H-2, S-1*R. Luman*

History of Christian thought and institutions from the 1st century to the 15th. No prerequisites, but Religion 101a or b and 102a or b and/or History 111 may be helpful. Enrollment limited to 20 students.

Offered in 1978-79 and alternate years.

207a, 208b Origins and Growth of Classical Christian Literature V-2, H-1*Staff*

The writings of early Christian thinkers in the context of the social and intellectual concerns of the Graeco-Roman world. Primary readings include Biblical, Apocryphal, Pseudepigraphical, and early Catholic texts, with attention to the rise over the past 200 years of "normative" schools of interpretation in Biblical and Early Church studies.

Offered in 1978-79 and alternate years.

209b Literature as Religion V-2, L-1*Staff*

An examination of literature rather than institutional religion as the forum for examining basic issues of morality, cosmology, and human nature, focusing on British and American writing from the Victorian period to the present.

Offered in 1977-78 and alternate years.

215a Modern Critics of Christianity V-2, S-1*R. F. Thiemann*

An examination of the philosophical, sociological, and psychological criticisms of Christianity arising out of Christianity's encounter with modernity. Readings in Feuerbach, Freud, Marx, Nietzsche and others.

Offered in 1978-79 and alternate years.

221a Classical Religions of the Greeks and Romans H-3*Staff*

The structure and historical development of Greek and Roman religious belief and practice from the Minoan period through the rise of Christianity, with reading of primary sources in translation and a few major works of interpretation. Two major themes of the course are the fundamental shifts in religious structure following the conquests of Alexander the Great, and the efforts of Hellenistic peoples to define and locate themselves within their own ancient traditions.

Offered in 1978-79 and alternate years.

226a The German Church Struggle V-2, H-1*R. F. Thiemann*

An historical and theological investigation of the crises precipitated within German Christianity by the accession to power of Adolf Hitler and the Nazi Party. Readings include documents of the German Christian Movement, the Confessing Church, the Roman Catholic Church, and Karl Barth, Dietrich Bonhoeffer and others.

Offered in 1977-78 and alternate years.

235a The Late Medieval Church H-3*R. Luman*

A study of the developments of the Late Medieval Church, especially the Avignonese Papacy, the Great Schism of the West, and the Conciliar Movement, and the implications of these constitutional developments for later religious (the Reformation) and political thought.

Prerequisite: consent of the instructor.

Offered in 1977-78 and alternate years.

Religion

236b The Protestant Reformation H-3

R. Luman

A study of the Protestant Reformation, its history and thought, with special attention to the work and thought of Luther, the "Left Wing," and Calvin. Prerequisites: consent of instructor; however, courses such as Religion 201a or 292b, 235a, and History 111 are called to the student's attention.

Offered in 1977-78 and alternate years.

240b History and Principles of Quakerism H-2, V-1

E. B. Bronner

(For course description see History 240b and General Programs 240b)

Not offered in 1977-78.

242b Paradigms in Religious Behavior S-2, V-1

Staff

Patterns alleged to occur universally in the religious thought and activity of man; an effort to evaluate the several attempts to include them under universal rubrics; consideration of such motifs as mother goddesses, magic and ritual acts, and shamans.

Offered in 1977-78 and alternate years.

243a Religion in the Age of Reason V-2, H-1

R. E. Thiemann

The ideas concerning religion put forward by some of the leading intellectuals of the 17th and 18th centuries.

Offered in 1978-79 and alternate years.

244b Crisis and Recovery: The Theology of the Nineteenth Century V-2, H-1

R. E. Thiemann

An examination of writings of 19th century theologians (e.g., Schleiermacher, Kierkegaard, Ritschl) set against the background of important critiques of religion (e.g., Kant, Feuerbach, Marx).

Offered in 1978-79 and alternate years.

245a Contemporary Religious Thought V-2, H-1

R. E. Thiemann

An examination of the thought of representative Christian theologians of the 20th century (e.g., Barth, Bultmann, Bonhoeffer, Tillich, the Niebuhrs).

Offered in 1977-78 and alternate years.

255b Anthropology of Religion

H. Whitehead

(For course description see Sociology and Anthropology 255b)

270a Religion and Morality V-3

R. E. Thiemann

Various major secular and religious systems of ethics, approached through readings from primary sources. A major concern is a study of the relationship between morality and religion. Prerequisites: an introductory course in either Religion or Philosophy, or consent of the instructor.

Offered in 1977-78 and alternate years.

282b The Scandinavian North: The Icelandic Sagas H-2, L-1
(Also called General Programs 282b)

R. Luman

A discussion of Viking life at home and abroad, of a major medieval literary tradition, of the life of the Icelandic Commonwealth and its associated problems as reflected in the Icelandic Sagas. Readings include *Njðls Saga*, *Laxdæla Saga*, the *Vinland Sagas*, *Egils Saga Skallagrimssonar* together with critical and historical literature.

Offered in 1978-79 and alternate years.

305a Christian Social Philosophy H-2, V-1

Staff

An examination of formative treatises which have defined the Christian understanding of the State, the obligations, responsibilities and rights of the individual in the State, and the special obligations and privileges of the rulers of States. Readings, starting with St. Paul, emphasize pivotal works rather than a survey. A few interpretive works furnish a coherent framework for the original materials.

Offered in 1977-78 and alternate years.

338a Philosophy of Religion V-3

R. F. Thiemann

Reading and discussion of contemporary religious philosophers and their insights into fundamental conceptual problems encountered in the practice and study of religion. Prerequisite: consent of the instructor.

343b Seminar in Religious Thought V-2, H-1

R. F. Thiemann

Specialized study of the works of some major philosopher or theologian, or work on a major theological problem. May be repeated for credit with change of content. Prerequisite: consent of the instructor; reading knowledge of appropriate languages is desirable.

345a Seminar in Western Religious History H-3

R. Luman

Intensive study of a major thinker or movement in Western religious history. May be repeated for credit with change of content. Prerequisite: consent of the instructor.

350a or b Seminar in History of Religions S-2, V-1

Staff

Intensive study of some period or set of problems in the field. May be repeated for credit with change of content. Prerequisite: consent of the instructor.

399b Modern Trends in Religion V-2, H-1

Staff

Advanced study of topics in the field. Required of senior majors and open to other qualified seniors with consent of the instructor.

480a, b Independent Study

Staff

Individual consultation; independent reading and research.

Russian

At Bryn Mawr College

Associate Professor **Ruth L. Pearce**, *Chairman*

Associate Professor **Dan Davidson**

Assistant Professor **George Pahomov**¹

Assistant Professor **Lynn Visson**

Instructor to be announced

Professor of Philosophy **George L. Kline**

At Haverford

Professor of Economics **Holland Hunter**

Professor of History **Linda G. Gerstein**

The courses in Russian are designed to offer students the opportunity to learn to read and speak Russian and to achieve an understanding of the thought and culture of pre-revolutionary as well as contemporary Russia.

MAJOR REQUIREMENTS All majors must have three years (or the equivalent) of work in the Russian language, two years of work in the area of concentration (literature, history, economics, or philosophy) of which one must be at the advanced level, one year of work outside the area of concentration, and Senior Conference. See the Bryn Mawr College Calendar for specific details. A comprehensive examination in the Russian language and in the area of concentration is given.

REQUIREMENTS FOR HONORS Honors in Russian are awarded on the basis of consistently high quality of work and a research paper. High Honors are awarded on the basis of further oral examination.

001 Elementary Russian

Staff

Basic grammar with enough vocabulary to enable the student to speak and understand simple Russian and to read simple texts. Five times a week.

Offered at both Haverford and Bryn Mawr Colleges.

101 Intermediate Russian E-2, L-1

Staff

Continuing grammar study, conversation, and vocabulary building; readings in contemporary Russian materials. Five times a week.

211a The Soviet System S-2, H-1

Holland Hunter

(For course description see Economics 211a)

Offered in 1978-79 and alternate years.

244 Russian History H-2, L-1

L. G. Gerstein

(For course description see History 244)

Offered in 1978-79 and alternate years.

245 Russia in the Twentieth Century H-2, L-1 L. G. Gerstein
 (For course description see History 245)
 Offered in 1977-78 and alternate years.

356b Russian History: Fin de Siècle, 1890-1914 H-3 L. G. Gerstein
 (For course description see History 356b)
 Offered in 1977-78 and alternate years.

398a Research Seminar S-3 M. Weinstein
 (For course description see Economics 398a)

480 Independent Study

COURSES OFFERED AT BRYN MAWR COLLEGE

001 Elementary Russian D. Davidson

100 Intensive Russian E-2, L-1
 Not offered in 1977-78.

101 Intermediate Russian A-2, L-1 R. L. Pearce

200 Advanced Training in the Russian Language L-2, E-1
L. Visson and instructor to be announced

201 Readings in Russian L-2, E-1 R. L. Pearce

203 Russian Literature in Translation L-2, V-1
 Offered in 1978-79 and alternate years.

204a Tolstoy (in translation) L-3 D. Davidson
 Offered in 1977-78 and alternate years.

204b Dostoevsky (in translation) L-3 D. Davidson
 Offered in 1977-78 and alternate years.

206b International Economic Theory and Policy S-3 N. J. J. Farley
 (For course description see Bryn Mawr Calendar, Economics 206b)

210a Developing Economies S-2, H-1 N. J. J. Farley, Holland Hunter
 (For course description see Bryn Mawr Calendar, Economics 210a)

303a Twentieth Century Russian Literature L-2, V-1 L. Visson
 Offered in 1977-78 and alternate years.

Russian

303b Twentieth Century Russian Literature L-2, V-1

L. Visson

Offered in 1977-78 and alternate years.

305 Advanced Russian Grammar E-2, L-1

R. L. Pearce

**306a Russian Prose and Poetry from Classicism to the Rise of Realism
L-2, V-1**

Offered in 1978-79 and alternate years.

**306b Russian Prose Literature of the Second Half of the Nineteenth
Century L-2, V-1**

Offered in 1978-79 and alternate years.

333a Russian Philosophy V-2, H-1

(Also called Philosophy 333a)

(For course description see Bryn Mawr Calendar, Philosophy 333a)

Offered in 1978-79 and alternate years.

333b Marx and Russian Marxism V-2, H-1

G. L. Kline

Offered in 1978-79 and alternate years.

390 Senior Conference

Sociology and Anthropology

Professor **Wyatt MacGaffey**, *Chairman*
 Associate Professor **William Hohenstein**
 Assistant Professor **Harriet Whitehead**
 Instructor **Mark Gould**²

A student majoring in this Department selects a member of the full-time staff as his advisor and develops a program of study acceptable to the advisor as fulfilling the College's general education aims and as including a coherent and relatively intense exploration in the discipline of sociology. The Department expects such a program to lead to an understanding of past and present theories of social behavior, of their application to concrete examples of interpersonal relations, and the methods of research.

Major programs include 155a and b, or 152a, or both; at least one course in Sociology or Anthropology on another campus; 450 (senior thesis or equivalent); and a minimum of six other courses in the Department.

Competence in French, German or Spanish is recommended and at the graduate level will be indispensable.

152a Elementary Anthropology S-2, A-1

W. MacGaffey

An introduction to the distinctive concerns and methods of social anthropology through the study of systems of production, social reproduction, and exchange in Subsaharan Africa. Not open to seniors.

155a,b Foundations of Sociology S-2, H-1

Staff

An introduction to the key questions addressed by the major figures in the sociological traditions. In particular the concepts of freedom, responsibility, alienation, class, power and progress will be examined for their relevance to an understanding of contemporary societies.

159a Sociology of the Family S-3

H. Whitehead

(Also called General Programs 159a)

Cross-cultural perspectives on family structure, followed by a series of controversial questions concerning the Western family: development of the bourgeois family; ethnic diversity in the American family, with special reference to blacks; Marxist and feminist perspectives; ideological biases in social science. Readings from Levi-Strauss, Freud, Aries, Mitchell, Parsons, Gutman, Genovese, Schneider and Smith.

200a Theory and Action S-2, E-1

M. Gould

An inquiry into the institutional conditions within which a viable body of sociological theory might be constructed, including an analysis of two or three of the following situations: medical practice, the psychoanalytic relationship, college class rooms and the revolutionary party. Prerequisite: consent of the instructor.

Not offered in 1977-78.

001a, b Elementary Spanish

Staff

Development of the basic phonetic and structural skills to introduce the students to "fundamental" Spanish. Greatest emphasis is placed on spoken Spanish, with some grammar and written exercises, to enable students to understand and maintain a conversation. Students with some background in the study of the Spanish language are advised to see the instructor before taking the course.

003a, b Intermediate Spanish E-2, L-1

Staff

Review of conversational skills; Spanish grammar; reading material from Spanish and Spanish-American literatures, as well as from magazines and newspapers of the Hispanic world. Students are expected to develop an involvement with Hispanic culture in order to improve and test their ability to use Spanish. Prerequisite: Spanish 001a, b or the equivalent.

050b Exercises in Composition E-2, L-1

L. M. García-Barrio

A course intended for those students whose native language is Spanish and those who have a near-native language proficiency in Spanish. Students will work in developing their own style after a careful examination of the use of stylistics in selected writers of Spanish literature and are encouraged to participate actively in the publication of a magazine in Spanish for the College. Limited to 12 students. Prerequisite: consent of the instructor.

Not offered in 1977-78.

101a, b Readings in Spanish Literature L-2, H-1

L. M. García-Barrio

A survey of Spanish literature from the beginnings to modern times; lectures, written and oral reports. Offered jointly with Bryn Mawr College. Prerequisite: consent of the instructor.

203b Introduction to Spanish-American Literature L-2, H-1

R. García-Castro

A survey of Spanish-American literature from the colonial period to modern times; lectures, written and oral reports. Prerequisite: Spanish 101a, b or consent of the instructor.

Offered in 1977-78 at Bryn Mawr College.

205a Studies in Spanish American Novel L-2, H-1

R. García-Castro

A course designed to acquaint students with various important 20th century Spanish-American novelists such as Ricardo Güiraldes, Rómulo Gallegos, María Luisa Bombal, Alejo Carpentier, Manuel Rojas, Julio Cortázar, Severo Sardui, Gabriel García Márquez.

Not offered in 1977-78.

209a Contemporary Spanish Theater L-2, H-1

L. M. García-Barrio

A study of Spanish Drama since 1900: Benavente, Valle-Inclán, García-Lorca, Unamuno, Casona, Buero Vallejo, Sastre; possibility of staging one of the plays studied in the course. Prerequisite: Spanish 101a, b or consent of the instructor.

Not offered in 1977-78.

304b Spanish Drama of the Golden Age L-2, H-1

L. M. García-Barrio

Works of Lope de Vega, Calderón de la Barca, Tirso de Molina, and other dramatists from the beginning of the Spanish drama to the end of the 17th century. Prerequisite: consent of the instructor.

305b Prose of the Sixteenth and Seventeenth Centuries L-2, H-1

L. M. García-Barrio

A study of the picaresque novel from *Lazarillo de Tormes* to *El diablo cojuelo*. Prerequisite: consent of the instructor.
Not offered in 1977-78.

310a Cortázar L-3

R. García-Castro

Julio Cortázar's main novels *Los premios* and *Rayuela* are read in connection with his short stories *Las armas secretas*, *Final de juego*, *Todos los fuegos el fuego*, and *Historias de cronopios y famas*. His books of essays *62 modelo para amar*, *La vuelta al día en ochenta mundos* and *Ultimo rouno* will be included to help understanding of the most famous present day writer of the Spanish language. Prerequisite: consent of the instructor.
Not offered in 1977-78.

313a Literature of the Caribbean L-3

R. García-Castro

A selection of essays, novels, plays, and poetry from Columbus to the present, including Darío, Martí, Henríquez Ireña, Carpentier, Asturias, Nicolás Guillén, Palés Matos, René Marqués. Prerequisite: consent of the instructor.

315b Novísima Literatura Hispano-Americana L-2, H-1

R. García-Castro

A course intended to show the latest developments in Spanish-American literature. Recent novels by José Agustín, Bryce Echenique, Antonio Skarmeta, Manuel Puig are read together with the latest poetry of Nicanor Parra and Ernesto Cardenal, and the most recent of Julio Cortázar's essays. Prerequisite: consent of the instructor.

333b Nineteenth Century Spanish Theater L-2, H-1

L. M. García-Barrio

The origins and development of the Romantic drama in Spain, with special attention to the theme of Don Juan Tenorio. Other aspects of the 19th century drama to be studied are: Realism in the stage, the drama of the "burguesía," the "alta comedia," and the "zarzuela." Prerequisite: consent of the instructor.

Not offered in 1977-78

384b Essay in Spanish America L-2, H-1

R. García-Castro

The problems and struggles of Latin America emerging as a new world, in the essays of outstanding writers from the 19th and 20th centuries: Andrés Bello, José Martí, Jorge Luis Borges, Julio Cortázar, Octavio Paz, etc. Prerequisite: consent of the instructor.

480a, b Independent Study

Staff

490b Senior Departmental Studies

Staff

COURSES OFFERED AT BRYN MAWR COLLEGE IN 1977-78

Spanish

202a, b Advanced Language Training and Composition L-2, H-1 *E. Sacerio-Garl*

203b Spanish-American Literature *E. Sacerio-Garl*

206a Narrative Structure: Popol Vuh to Borges *E. Sacerio-Garl*

302a Medieval Spanish Literature *E. Paucker*

303a Modern Spanish and Spanish-American Poetry *J. González-Muela*

303b Contemporary Spanish Novel *W. F. King*

Hispanic Studies

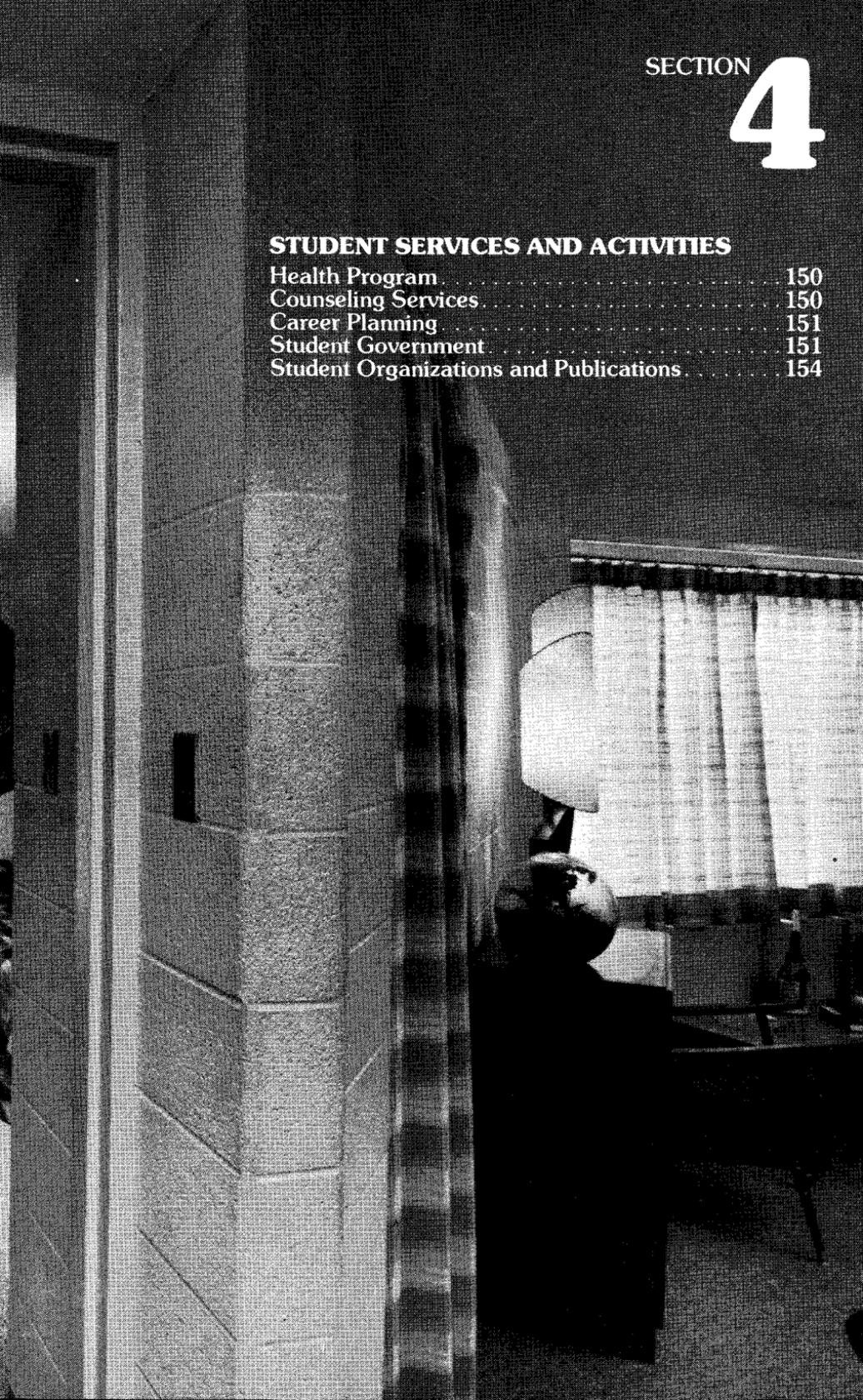
210a Hispanic Culture and Civilization H-2, S-1 *W. F. King*



SECTION
4

STUDENT SERVICES AND ACTIVITIES

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Health Program

The Haverford College Health Program is a student service established to provide medical assistance and health education to the Haverford College community.

The service is maintained by a medical staff consisting of one part-time physician, one full-time Nurse Practitioner and two part-time Registered Nurses responsible for extending emergency primary care to the ill and injured and for making appropriate referrals to outside resources when necessary. Health counseling with emphasis on the maintenance of optimal physical and emotional health and the development of proper health attitudes and habits is always available.

Out-patient service may be received at the dispensary, daily Monday through Friday during clinic hours.

All in-patient service, as well as night and weekend emergency service, is referred to the Bryn Mawr College Infirmary located a short distance from the Campus. Emergency transportation is provided when necessary.

Students have the option of three alternatives regarding Accident and Health Insurance: (a) coverage may be purchased through the College Insurance Plan, or (b) the student must provide proof of other adequate health insurance coverage, or (c) the student or, for those under 18 years of age, the parents must sign a waiver releasing the College from all health insurance responsibility. A special form explaining these three options in detail is sent with the billing from the Business Office during the summer and must be returned to the Nurse Director as a prerequisite for the issuance of keys, identification cards, and other non-academic registration. *Also required* by August 16 of each year is a complete physical report by the student's family physician on a form supplied in June to incoming freshmen and transfers and returning seniors. The College physician does not perform such routine examinations.

All medical records and information are regarded as confidential and are not released without authorization of the student.

Counseling Services

The Haverford College counseling service, composed of one full-time clinical psychologist, one part-time clinical psychologist, and one part-time psychiatrist, offers counseling for personal, educational or vocational

problems. Most students who seek help see a counselor a few times, while some students are seen for a more extended series of contacts, either individually or in groups. When appropriate, referral is made for outside treatment in metropolitan area clinics or with private therapists. All counseling contacts with the staff are held in strict professional confidence, as are the names of students counseled.

The counselors have two additional functions: to develop or encourage programs and policies which foster an atmosphere in which personal problems are less likely to develop, and to encourage and offer programs that contribute to the general emotional growth of students.

Career Planning Office

The Career Planning Office provides advice, information and activities, both on and off-campus, designed to assist students in the exploration of potential careers. It maintains a library of graduate and professional school catalogs, foreign university programs, company and government agency brochures, various directories, and numerous other materials pertaining to summer or full-time employment, study abroad, alternative vocations, and graduate school testing and admissions.

Throughout the year, the Career Planning Office hosts recruiters from graduate schools, business firms, and Federal and private agencies, and frequently arranges seminars, conferences or informal dinners with alumni in a variety of professional fields, often in conjunction with the Career Planning Office of Bryn Mawr College. The Office also assists students contemplating a semester or year away from the College for study, travel or work, and maintains a file of part-time volunteer or paid work opportunities. A weekly bulletin, carrying news items and a schedule of Career Planning sponsored events, is circulated to the entire student body.

Student Government

The Students' Association is made up of all students enrolled at Haverford College and all Bryn Mawr College students living on the Haverford campus. The College has delegated to the Students' Association—and the Association has accepted—the responsibility for nearly all aspects of student conduct and of student organizations on the campus. The Students' Association in turn delegates authority to the Students' Council and to the Honor Council to carry on its executive, legislative, and judicial functions.

Students' Council supervises all extracurricular activities, exclusive of athletics, and allocates to each organization a percentage of the student activity fee. Through its several committees, and as the representative body of the Students' Association, the Council is involved in every aspect of student life and campus governance. The Council cooperates extensively with the Self-Government Association of Bryn Mawr College on all matters that affect the interests of the bi-College community. The two student governments meet together on a regular basis, and the two student body presidents cooperate closely.

COMMITTEE SYSTEM: The Students' Council appoints students to serve as members of all faculty committees responsible for all aspects of college life. The major committees include: (1) the Educational Policy Committee, which is responsible for the contents of the curriculum and curricular requirements; (2) the Administrative Advisory Committee, which helps to develop the College budget, advises the College administration, and reports to the faculty; and (3) the Committee on Student Standing and Programs, which examines cases of students in academic difficulty. Other committees advise the Physical Education Department on general policies, participate in the formulation of the General Programs section of the curriculum, participate in the selection and funding of invited speakers, and much more. Students also serve on all search committees for new faculty appointments.

There are also internal Students' Council committees which review the student budget, and another committee, chaired by the Second Vice-President, which makes all committee appointments. Numerous bi-College clubs and committees direct the social life and keep the Arts active on both campuses.

A junior and a senior, each of whom has been selected in his sophomore year for a two-year term, serve as representatives to the Haverford College Board of Managers, which also forms subcommittees on which students serve.

The Honor Council administers all aspects of the Honor System and has the responsibility of interpreting specific matters pertaining to the Honor System. The Chairman of the Honor Council also serves as First Vice-President of the Students' Association, and is a member of the Students' Council.

HONOR SYSTEM: The Honor System at Haverford is based on the belief that students can successfully take the responsibility of establishing and maintaining standards in social and academic life. It is founded on the principle of collective responsibility whereby each individual shares a mutual concern for others within the college community. In the academic area the Honor System stipulates that one should distinguish clearly between his own

work and material from any other source. Consequently, hour-examinations and semester-examinations have not been supervised by proctors since 1898, and since 1962 students have been free to schedule semester-examinations at times most convenient to themselves. And in the social realm, it is expected both that a concern for others will be shown, and that should problems occur they be dealt with in a spirit of mutual respect.

The Honor Pledge is called to the attention of each applicant for admission to Haverford College:

"I hereby accept the Haverford College Honor System, realizing that it is my responsibility to uphold the Honor System and the attitude of personal and collective honor upon which it is based."

Each entering student must feel confident before selecting Haverford that he can give his active support to the Honor System and subscribe to this pledge.

Specifically, each student who enters Haverford pledges himself to uphold three responsibilities: (1) to govern his own conduct according to the principles which have been adopted by the Students' Association; (2) in case of a breach of the Honor System to report himself to the Honor Council; (3) if he becomes aware of a violation by another student, to ask the offender to fulfill his pledge by reporting himself. If the offender refuses, the student is pledged to report the matter to the Honor Council. In this manner each individual becomes personally responsible for the successful operation of the entire Honor System.

The following statement has been prepared by the Honor Council:

"As it stands, the Honor System consists of an Honor Code which is placed in the hands of all students accepted for admission and which is administered by an Honor Council, a body of twelve students chosen from the student body. In it are embodied the stated ideals of Haverford College. Yet, as with any set of ideals, there are instances when practice does not measure up to them. Among those ideals is the means of mediating differences between individuals and between groups known as confrontation, which, under the Honor System, means subjecting one's beliefs and those of others to re-examination.

"The Code represents an attempt by students to mediate the tensions between themselves as free individuals and the restrictions imposed on them by their living together, and their commitment to academic work. If a student believes that another's actions may be in conflict with the principles of responsibility and respect inherent in the Code, he must discuss the matter with the individual concerned. Confrontation often takes the form of a dialogue between persons with different standards. If, after discussion, either

student finds the actions or beliefs in question to be in possible conflict with the Code, he must bring the matter to a member of the Honor Council. If the matter cannot be resolved on this level, then it comes to the entire Honor Council. The Code also prescribes guidelines for academic honesty, integrity in social relationships, and responsibility in the use of drugs and intoxicants. Upon entering the College, the student pledges himself to uphold the principles of confrontation, respect and concern.

“The Honor Code often undergoes serious reevaluation by the student body. Such a reevaluation may bring about basic changes in the Code, its ideals, and the way its ideals are put into practice. This is not undesirable, since a healthy Code must prompt constant evaluations of individual and group interrelations within the College as well as a reevaluation of the Code itself, since it both defines and reflects these interrelations. Indeed, an absence of individual and group confrontations is viewed as an indication that the Code is unimportant to the College. Confrontations are taking place, and the College is attempting to respond. The quality of that response will be, as always, the best indicator of the possibility of an Honor System working successfully at Haverford. An Honor System is a very complex and challenging form of self-government; we hope that individuals at Haverford College can rise to it.”

The Honor Council

Student Organizations and Publications

The Haverford community supports a wide variety of social and cultural organizations in which all students have an opportunity to participate. The Students' Council funds approximately 40 of these, most of which function year after year while others flourish only where there is sufficient interest. The Students' Council encourages interested students to organize themselves and apply for an appropriate budget. Recent appropriations have covered everything from Asian Studies to a Barbership Quartet and from an Environmental group to a Chess Club.

Most of the student organizations are sponsored and funded jointly with Bryn Mawr College. All student publications—the weekly Haverford-Bryn Mawr *News*, the literary magazine, and the yearbook *Accord*—are bi-college productions. The same is true for programs in drama, music, dance and the film series, all of which enjoy extensive followings. WHRC, the radio station founded at Haverford in 1927, is now funded by both colleges, and offers air time to virtually all interested students.

Several religious organizations initiated by students reflect various traditions and faith and practice.

Haverford encourages diversity of cultural expression to which the Black Students League, the Puerto Rican Students at Haverford, and the Casa Hispánica contribute by sponsoring cultural and social events for the entire campus. The Forensics Club and the Model UN Club are both substantial organizations, conducting activities on the Haverford campus and traveling to compete at other colleges.



SECTION

5

FELLOWSHIPS AND PRIZES

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Endowed Fellowships for Haverford Graduates

Clementine Cope Fellowships, established in 1899 by Clementine Cope, granddaughter of Thomas P. Cope, member of the Board of Managers from 1830 to 1849.

These fellowships are to "assist worthy and promising graduates of Haverford College in continuing their studies at Haverford or at some other institute, in this country or abroad, approved by the Board of Managers."

First and Second Cope Fellows are nominated by the faculty and ratified by the Board of Managers. Individual stipends, not to exceed \$1,000, are determined by the Board.

Letters of application, accompanied by relevant statements of extra-curricular activities, transcript and two letters of reference, must be in the hands of the President by March 31.

Augustus Taber Murray Research Fellowships, established in 1964 by two anonymous friends "in recognition of the scholarly attainments of Augustus Taber Murray, a distinguished alumnus of Haverford College of the Class of 1885."

These fellowships are for further study in English literature or philology, the classics, or German literature or philology, in other institutions, toward the degree of Doctor of Philosophy or its future equivalent.

Only unmarried men are eligible. Further considerations are the candidate's promise of success in graduate work and the availability of other financial assistance in his proposed field of study.

Usually one Augustus Taber Murray Research Fellow is nominated by the faculty on recommendation of the Committee on College Honors and Fellowships. Individual stipend is \$900. The same student may be awarded the fellowship for two or three years.

Letters of application, transcript and two letters of reference, must be in the hands of the President by March 31.

Foundation Awards for Haverford Undergraduates

The Scott Paper Company Foundation Award for Leadership. An award of \$2,000 for the junior and senior years (\$4,000) to be given to a student who has achieved a high level of scholarship and noteworthy success in extra-curricular activities. The recipient should possess a balance of desirable personal qualities such as intelligence, integrity, strong moral character, loyalty, enthusiasm physical vigor, persuasiveness and social consciousness.

In addition, the recipient should possess those characteristics and abilities which should best equip the individual to succeed as a leader in industrial or commercial activities.

Crown Zellerbach Foundation Award. A \$1,500 award to a Junior or Senior selected on the basis of promise and achievement and anticipated significant contribution to society as a whole and to the recipient's field of endeavor in particular.

Prizes and Awards

John B. Garrett Prizes for Systematic Reading—A first prize of \$150 and a second prize of \$75 will be given at the end of the sophomore, junior, or senior year to the two students who, besides creditably pursuing their regular course of study, shall have carried on the most profitable program of reading in a comprehensive topic during a full college year.

Candidates for these prizes must register with the chairman of the department under whose supervision the work will be performed. The department is responsible for guiding the work and, not later than April 15, for reporting the achievement to the Committee on College Honors and Fellowships for final judgment. Either or both of these prizes may be omitted if, in the judgment of the Committee, the work does not justify an award.

Interested students should apply directly to a relevant department for information.

Class of 1896 Prizes in Latin and Mathematics—Two prizes of \$10 each, in books, to be known as the Class of 1896 Prizes in Latin and Mathematics, were established by the bequest of Paul D. I. Maier of the Class of 1896. They are awarded at the end of the sophomore year to the students who have done the best work in the Departments concerned.

Lyman Beecher Hall Prize in Chemistry—An annual prize of \$100 was established by the Class of 1898 on the 25th anniversary of its graduation in honor of Lyman Beecher Hall, Professor of Chemistry at Haverford College from 1880 to 1917.

This prize may be awarded to a student who has attained a high degree of proficiency in chemistry and who shows promise of contributing substantially to the advancement of that science. It may be awarded to a junior, to a senior, or to a graduate of Haverford College within three years after graduation. It may be awarded more than once to the same student, or it may be withheld.

the furtherance of academic pursuits, extracurricular activities, spiritual growth, or college spirit in individuals or in the College as a whole during the year. The award is made by the Students' Council and is to be used in continuing to render such service.

William W. Baker Prize in Greek—A prize of \$25, in books, established in 1954 in memory of William W. Baker, professor of Greek at Haverford College from 1904 to 1917, is given in the study of Greek, and is administered by the Classics Department.

Kurzman Prize in Political Science—A prize of \$125, established in 1958 by Harold P. Kurzman, is awarded annually to the senior who has performed best and most creatively in Political Science, except when in the judgment of the Department no student has done work of sufficient merit to warrant such award.

John G. Wallace Class Night Award—A silver cup to be awarded annually for the best individual acting in the Class Night performances.

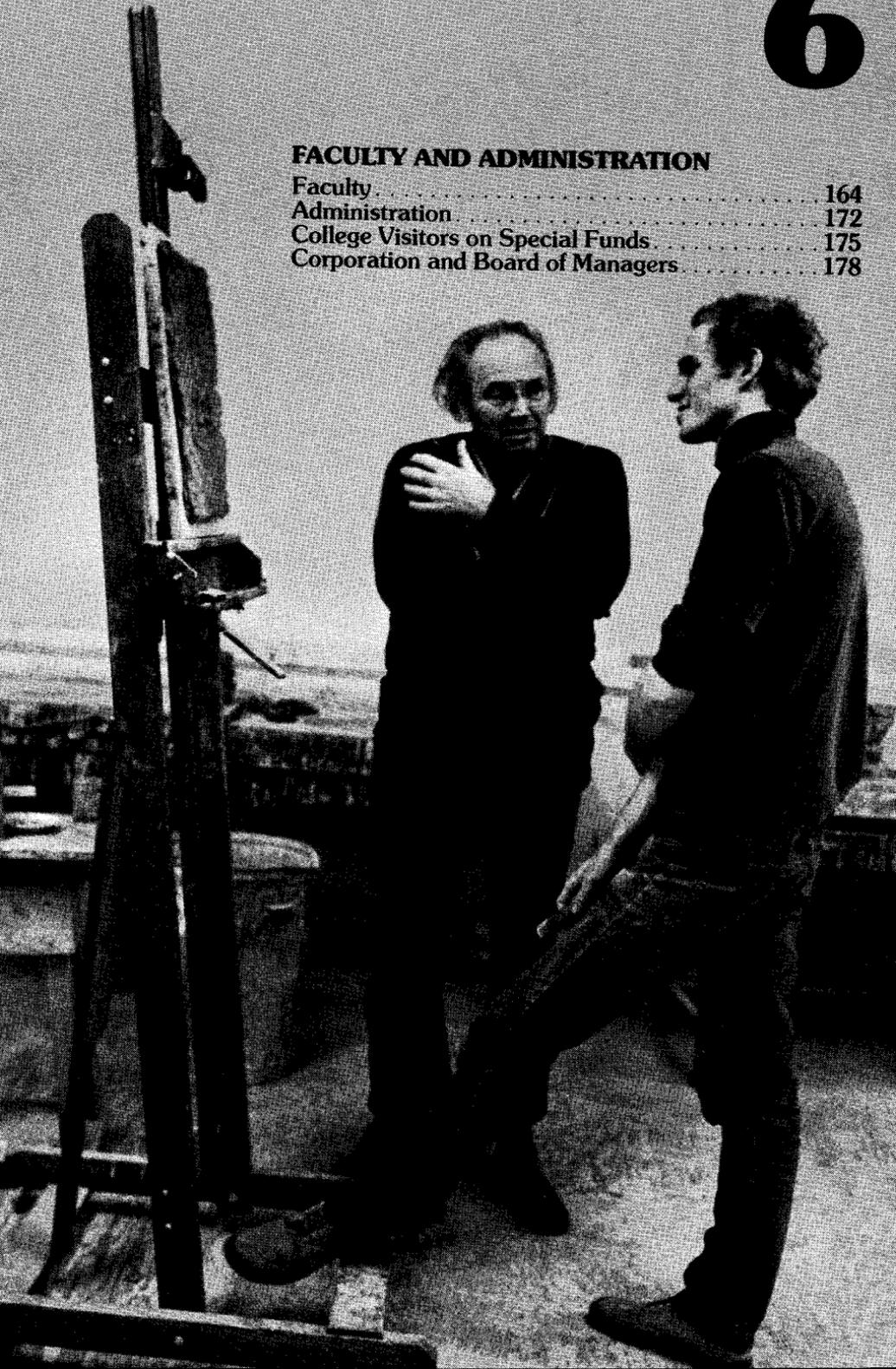
The Varsity Cup—An award given by the Physical Education Department to the member of the Senior Class who excels in leadership, sportsmanship, and athletic ability.

Stephen H. Miller Memorial Award—Friends of Stephen H. Miller have established in his memory an award which is to be given to that graduating Political Science major who best exemplifies the ideal of political involvement and social service expressed in the life and career of Stephen H. Miller, Class of 1962, who lost his life while serving his country and his fellow man, taking part in village development in Vietnam. This prize is administered by the Political Science Department.

William Docherty Awards—Presented by the Physical Education Department at the close of each intramural basketball season to the individuals who best exemplify the traditions of fair play and competitiveness which will always be associated with Bill Docherty's name at Haverford.

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Faculty

Stephen G. Cary, *Acting President*

B.A., Haverford College; M.A., Columbia University

EMERITI

Manuel J. Asensio, *Professor of Romance Languages, Emeritus*

B.A., University of Granada; M.A. and Ph.D., University of Pennsylvania.

Thomas A. Benham, *Professor of Engineering, Emeritus*

B.S. and M.S., Haverford College.

Hugh Borton, *President, Emeritus*

B.S., Haverford College; M.A., Columbia University; Ph.D., University of Leyden; LL.D., Temple University; LL.D., University of Pennsylvania; LL.D., Haverford College.

William E. Cadbury, Jr., *Professor of Chemistry, Emeritus*

B.S. and M.A., Haverford College; Ph.D., University of Pennsylvania; LL.D., Haverford College.

Howard Comfort, *Professor of Classics, Emeritus*

B.A., Haverford College; M.A. and Ph.D., Princeton University.

Frances De Graaff, *Professor of Russian, Emerita*

Ph.D., University of Leyden.

Thomas E. Drake, *Professor of American History, Emeritus*

B.A., Stanford University; M.A., University of Michigan; Ph.D., Yale University.

Louis C. Green, *Professor of Astronomy, Emeritus*

B.A., M.A. and Ph.D., Princeton University.

Theodore B. Hetzel, *Professor of Engineering, Emeritus*

B.S., Haverford College; B.S. in M.E., University of Pennsylvania; M.S. and Ph.D., Pennsylvania State University.

Clayton W. Holmes, *Professor of Engineering, Emeritus*

B.S. in M.E., University of New Hampshire; M.A., Haverford College.

Archibald MacIntosh, *Vice President and Director of Admissions, Emeritus*

B.A., Haverford College; M.A., Columbia University; Ph.D., University of Pennsylvania; LL.D., Haverford College.

Cletus O. Oakley, *Professor of Mathematics, Emeritus*

B.S., University of Texas; M.S., Brown University; Ph.D., University of Illinois; D.Sc., Haverford College.

Harry W. Pfund, *Professor of German, Emeritus*

B.A., Haverford College; M.A. and Ph.D., Harvard University.

Frank J. Quinn, *Professor of English, Emeritus*

B.A., M.A. and B.Litt., Oxford University.

William H. Reese, *Professor of Music, Emeritus*

B.A., Amherst College; M.A., Columbia University; Ph.D., University of Berlin.

Ralph M. Sargent, *Francis B. Gummere Professor of English, Emeritus*
B.A., Carleton College; Ph.D., Yale University.

Douglas Van Steere, *T. Wistar Brown Professor of Philosophy, Emeritus*
B.S., Michigan State College; B.A. and M.A., Oxford University; M.A. and Ph.D., Harvard University; D.D., Lawrence College; L.H.D., Oberlin College; L.H.D., Earlham College; S.T.D., General Theological Seminary; LL.D., Haverford College.

Howard M. Teaf, Jr., *Professor of Economics, Emeritus*
B.S. in Economics, M.A. and Ph.D., University of Pennsylvania.

ACTIVE*

John Ashmead, Jr.³, *Professor of English*
B.A., M.A. and Ph.D., Harvard University.

Daniel Asimov⁶, *Assistant Professor of Mathematics*
B.S., Massachusetts Institute of Technology; M.A. and Ph.D., University of California, Berkeley.

John S. Beckerman, *Walter D. and Edith M. L. Scull Assistant Professor of English Constitutional History*
B.A., Union College; M.A., University of Iowa; Ph.D., University of London.

Richard J. Bernstein, *Professor of Philosophy*
B.A., University of Chicago; B.S., Columbia University; M.A. and Ph.D., Yale University.

Harold Boatrite⁶, *Assisant Professor of Music*
D.Mus., Combs College of Music.

Edwin B. Bronner³, *Professor of History*
B.A., Whittier College; M.A., Haverford College; Ph.D., University of Pennsylvania.

Tamara Brooks, *Associate Professor of Music*
B.S. and M.S., Juilliard School of Music.

Robert H. Butman, *Director of Drama with rank of Professor*, on joint appointment with Bryn Mawr College
B.A. and M.A., University of North Carolina.

R. Christopher Cairns⁴, *Assistant Professor of Fine Arts*
B.A., Oberlin; M.F.A., Tulane University.

John R. Cary, *Professor of German*
B.A., Haverford College; Ph.D., Johns Hopkins University.

*The following code indicates the availability of active Administration and Faculty in 1977-78.

¹On leave, 1977-78.

²On leave, first semester, 1977-78.

³On leave, second semester, 1977-78.

⁴On leave in residence, first semester, 1977-78.

⁵On leave in residence, second semester, 1977-78.

⁶On appointment, 1977-78.

⁷On appointment, first semester, 1977-78.

⁸On appointment, second semester, 1977-78.

⁹On appointment, 1977-79.

¹⁰On leave, 1977-79.

- John P. Chesick**, *Professor of Chemistry*
B.S., Purdue University; Ph.D., Harvard University.
- Bradford Cook**, *Professor of French*
B.A., Williams College; Ph.D., Yale University.
- Thomas D'Andrea**, *Associate Professor of Psychology*
B.A. and Ph.D., University of Minnesota.
- William C. Davidon**, *Professor of Physics*
B.S., M.S. and Ph.D., University of Chicago.
- Douglas A. Davis**, *Assistant Professor of Psychology*
B.A., University of Minnesota; Ph.D., University of Michigan.
- Felmon J. Davis**⁶, *Instructor in Philosophy*
B.A., Haverford College.
- John H. Davison**, *Ruth Marshall Magill Professor of Music*
B.A., Haverford College; M.A., Harvard University; Ph.D., University of Rochester.
- Paul J. R. Desjardins**^{4,5}, *Professor of Philosophy*
B.A., M.A. and Ph.D., Yale University.
- Rosemary Desjardins**⁶, *Assistant Professor of Philosophy*
B.A. and M.A., University of Melbourne; Ph.D., University of Pennsylvania.
- Keith H. Despain**, *Assistant Professor of Astronomy*
B.S., Brigham Young University; Ph.D., California Institute of Technology.
- Vernon Dixon**, *Associate Professor of Economics*
B.B.A., Manhattan College; M.S., Columbia University; M.A. and Ph.D., Princeton University.
- C. Lamar Elmore**, *Assistant Professor of German*
B.A., Georgia State University; M.A., and Ph.D., Johns Hopkins University
- Irving Finger**¹, *Professor of Biology*
B.A., Swarthmore College; Ph.D., University of Pennsylvania.
- Francis D. Fisher**, *Henry R. Luce Professor of Ethics and the Professions*
B.A., Harvard College; LL.B., Harvard Law School.
- Asoka Gangadean**¹, *Associate Professor of Philosophy*
B.A., City College of New York; Ph.D., Brandeis University.
- Luis M. Garcia-Barrio**, *Instructor in Spanish*
Bach. Sup., Instituto Nacional "J.M."
- Ramón Garcia-Castro**, *Assistant Professor of Spanish*
B.E., University of Chile; M.A., Harvard University; Ph.D., University of Pennsylvania.
- Robert M. Gavin, Jr.**, *Professor of Chemistry*
B.A., St. John's University; Ph.D., Iowa State University.
- Linda G. Gerstein**, *Professor of History*
B.A. and M.A., Radcliffe College; Ph.D., Harvard University.
- Daniel J. Gillis**, *Professor of Classics*
B.A., Harvard College; M.A. and Ph.D., Cornell University.

- Harvey Glickman**, *Professor of Political Science*
B.A., Princeton University; M.A. and Ph.D., Harvard University.
- Sylvia F. Glickman**⁹, *Assistant Professor of Music and Director of Chamber Music Program*
B.S. and M.Sc., Juilliard School of Music; L.A.R.M., Royal Academy of Music.
- Christopher G. Goff**, *Assistant Professor of Biology*
B.A., Amherst College; M.A. and Ph.D., Harvard University.
- Jerry P. Gollub**^{3,4}, *Assistant Professor of Physics*
B.A., Oberlin College; M.A. and Ph.D., Harvard University.
- John W. Gould**, *Lecturer in History*
B.A., Haverford College; M.A. and Ph.D., Yale University.
- Mark Gould**², *Instructor in Sociology*
B.A., Reed College.
- Curtis Greene**⁸, *Visiting Associate Professor of Mathematics*
B.A., Harvard College; Ph.D., California Institute of Technology.
- Samuel Gubins**⁶, *Lecturer in Economics*
B.A., Reed College; Ph.D., Johns Hopkins University.
- Marcel M. Gutwirth**, *William R. Kenan, Jr. Professor of French*
B.A., Columbia College; M.A. and Ph.D., Columbia University.
- Nicholas G. L. Hammond**⁸, *Visiting Professor of Classics*
B.A., Cambridge University.
- Robert S. Hartford**⁶, *Visiting Associate Professor of Physics*
B.S., Polytechnic Institute of Brooklyn; M.S. and Ph.D., University of Pennsylvania.
- Douglas H. Heath**¹, *Professor of Psychology*
B.A., Amherst College; M.A. and Ph.D., Harvard University.
- William F. Hohenstein**, *Associate Professor of Sociology*
B.A., Maryknoll Seminary; M.A. and Ph.D., University of Pennsylvania.
- Douglas J. Howe**⁶, *Assistant Professor of Mathematics*
B.S., Kansas State University; Ph.D., University of Pennsylvania.
- Shan-Yuan Hsieh**⁶, *Assistant Professor of Philosophy*
B.A., Tunghai University; M.A. and Ph.D., University of Chicago.
- Holland Hunter**, *Professor of Economics*
B.S., Haverford College; M.A. and Ph.D., Harvard University.
- Dale H. Husemoller**³, *Professor of Mathematics*
B.A., University of Minnesota; M.A. and Ph.D., Harvard University.
- Joanne Hutchinson**⁶, *Assistant Professor of English*
B.A., M.A. and Ph.D., Temple University.
- Dietrich Kessler**, *Professor of Biology*
B.A., Swarthmore College; M.S. and Ph.D., University of Wisconsin.
- Frances Coulborn Kohler**⁷, *Assistant Professor of Classics*
B.A., Wellesley College; M.A., Radcliffe College; Ph.D., Harvard University.

- L. Aryeh Kosman**, *Professor of Philosophy*
B.A. and M.A., University of California; Ph.D., Harvard University.
- Roger Lane**, *Professor of History*
B.A., Yale University; Ph.D., Harvard University.
- Maurice A. Lee**⁶, *Lecturer in English*
B.A. and M.A., Oklahoma State University.
- Charles L. Lerman**, *Assistant Professor of Chemistry*
B.S., Yale University; M.A. and Ph.D., Harvard University.
- John A. Lester, Jr.**, *Professor of English*
B.S., Haverford College; M.A. and Ph.D., Harvard University.
- Ariel G. Loewy**, *Professor of Biology*
B.S. and M.S., McGill University; Ph.D., University of Pennsylvania.
- Richard Luman**, *Associate Professor of Religion*
B.A., M.A. and Ph.D., University of Iowa.
- Wyatt MacGaffey**, *Professor of Anthropology and Director of African Studies*
B.A. and M.A., Cambridge University; Ph.D., University of California, Los Angeles.
- Colin F. MacKay**¹, *Professor of Chemistry*
B.S., University of Notre Dame; M.S. and Ph.D., University of Chicago.
- Sandra G. Malard**, *Assistant Professor of English*
B.A., Tufts University; M.A.T., Yale University; Ph.D., University of Michigan.
- Patrick McCarthy**¹⁰, *Associate Professor of French*
M.A., Harvard University; D. Phil., Oxford University.
- John W McKenna**, *Walter D. And Edith M. L. Scull Associate Professor for Research in English Constitutional History*
B.A., Amherst College; M.A., Columbia University; Ph.D., Cambridge University.
- Mira Ann Mihelich**, *Instructor in History*
B.A., University of Washington; M.A., Cornell University.
- Douglas G. Miller**, *Associate Professor of Physics*
B.A., Yale University; Ph.D., University of Rochester.
- Robert Mortimer**¹, *Associate Professor of Political Science*
B.A., Wesleyan University; M.A. and Ph.D., Columbia University.
- Mary J. Naus**, *Assistant Professor of Psychology*
B.A., University of Wisconsin; M.A. and Ph.D., Princeton University.
- Terry Lynn Newirth**⁶, *Assistant Professor of Chemistry*
A.B., Bryn Mawr College; Ph.D., Massachusetts Institute of Technology.
- Temple Painter**⁸, *Assistant Professor of Music*
B.Mus., Curtis Institute; D.Mus., Combs College of Music.
- R. Bruce Partridge**, *Professor of Astronomy and Director of the Strawbridge Memorial Observatory*
B.A., Princeton University; D.Phil., Oxford University.
- William Paul**⁶, *Lecturer in Humanities*
B.A., M.A., Columbia University

- Sidney I. Perloe**, *Professor of Psychology*
B.A., New York University; Ph.D., University of Michigan.
- Carolyn F. Phoenix**⁶, *Instructor in English*
B.A., Vassar College; M.A., Columbia University.
- James C. Ransom**, *Associate Professor of English*
B.A., University of New Mexico; M.A. and Ph.D., Yale University.
- Catherine J. Robert**⁶, *Instructor in English*
B.A., Connecticut College for Women; M.A., University of Pennsylvania.
- Deborah H. Robert**⁶, *Instructor in Classics*
B.A., Swarthmore College; M.A., Stanford University.
- Edgar S. Rose**, *Professor of English*
B.A., Franklin and Marshall College; M.A., and Ph.D., Princeton University.
- Ruth Rothman**⁶, *Instructor in Biology*
B.A., Temple University; M.S., University of Pennsylvania.
- Joseph Russo**¹, *Professor of Classics*
B.A., Brooklyn College; M.A. and Ph.D., Yale University
- Melvin Santer**, *Professor of Biology*
B.S., St. John's University; M.S., University of Massachusetts; Ph.D., George Washington University.
- Alfred W. Satterthwaite**, *Professor of English*
B.A., M.A. and Ph.D., Harvard University.
- Sara M. Shumer**, *Associate Professor of Political Science*
B.A., Barnard College; M.A., University of California, Berkeley.
- Kathryn E. Slott**⁹, *Instructor in French*
B.A. and M.A., University of Pennsylvania.
- John P. Spielman**, *Professor of History*
B.A., University of Montana; M.A. and Ph.D., University of Wisconsin.
- Charles Stegeman**, *Professor of Fine Arts*
Académie Royale des Beaux Arts, Brussels.
- Ronald Thiemann**, *Assistant Professor of Religion*
B.A., Concordia Senior College; M.Div., Concordia Seminary; M.A., M.Phil. and Ph.D., Yale University.
- Josiah D. Thompson, Jr.**¹, *Professor of Philosophy*
B.A., M.A. and Ph.D., Yale University.
- Richard V. Wagner**⁶, *Visiting Associate Professor of Psychology*
B.A., Haverford College; M.S. and Ph.D., University of Michigan.
- Sidney R. Waldman**, *Associate Professor of Political Science*
B.A., Oberlin College; Ph.D., University of North Carolina.
- Jeanne Walker**⁷, *Assistant Professor of English*
B.A., Wheaton College; M.A., Loyola University; Ph.D., University of Pennsylvania.
- Michael M. Weinstein**, *Instructor in Economics*
B.A., Stanford University.

Harriet Whitehead, *Assistant Professor of Sociology and Anthropology*
B.A., Bryn Mawr College; M.A. and Ph.D., University of Chicago.

Alexander Wilde⁷, *Assistant Professor of Political Science*
B.A., Lawrence University; Ph.D., Columbia University.

Adolphus L. Williams, Jr.¹, *Lecturer in Political Science*
B.A., Virginia Union University; J.D., University of Virginia.

Claude E. Wintner, *Professor of Chemistry*
B.A., Princeton University; M.A. and Ph.D., Harvard University.

SPECIAL APPOINTMENTS

Stephen V. Benson, *Research Assistant in Physics*
B.S., University of Maryland

John E. Butler, *Assistant in Biology*

Thomas Davis, *Assistant in the Science Division*

Joseph De Pasquale,⁶ *Member of the Resident Chamber Music Group*
Diploma, Curtis Institute of Music; Violist, Philadelphia Orchestra; Member, De Pasquale Quartet.

Robert De Pasquale,⁶ *Member of the Resident Chamber Music Group*
New School of Music; Violinist, Philadelphia Orchestra; Member, De Pasquale Quartet.

William De Pasquale,⁶ *Member of the Resident Chamber Music Group*
Violinist, Philadelphia Orchestra; Member, De Pasquale Quartet; Concert Master, Philadelphia Orchestra for Robin Hood Dell Summer Concerts.

Sylvia F. Glickman⁹, *Pianist-in-Residence; Member of the Resident Chamber Music Group.*
B.S. and M.Sc., Juilliard School of Music; L.R.A.M., Royal Academy of Music.

Elizabeth U. Green, *Research Associate in Biology*
B.A., M.A. and Ph.D., Bryn Mawr College.

George Harpham,⁶ *Member of the Resident Chamber Music Group*
Cellist, Philadelphia Orchestra; Member, De Pasquale Quartet

Carol C. Heller, *Research Assistant in Biology*
B.A., Wilson College

Gertrude Hetzel, *Research Assistant in Biology*
B.S.C., Memorial University of Newfoundland.

Mary Hoxie Jones, *Research Associate in Quaker Studies*
B.A., Mount Holyoke College.

Margaret Lathwell, *Research Assistant in Biology*
B.A., Swarthmore College.

Robert G. Schwartz, *Pre-law Advisor*
B.A., Haverford College; J.D., Temple University School of Law.

Jenette Wheeler, *Pre-Medical Advisor*
B.A., Johns Hopkins University; M.A., Emory University School of Medicine.

Academic Council

The Academic Council consists of the Acting President as *Chairman*; the Provost; the Dean of the College, who serves as executive secretary; three elected divisional representatives of the faculty, one to be elected yearly; and the two faculty representatives to the Board of Managers. The Academic Council, (1) appoints the standing committees of the faculty except as noted below, (2) makes recommendations to the President on faculty appointments, reappointments, promotions, and tenure in accordance with accepted procedures, and (3) may consider matters having College-wide academic implications which are referred to it by President and/or members of the Council. The elected members of the Academic Council for the academic year beginning September 1, 1977 are L. A. Kosman (Humanities), R. M. Gavin (Natural Sciences), and W. MacGaffey (Social Sciences), R. J. Bernstein and H. Glickman (Faculty Representatives to the Board of Managers).

Standing Committees of the Faculty

(The Acting President and Provost are ex-officio members of all committees.)

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J. P. Chesick, *Chairman*; J. H. Davison, W. F. Hohenstein

Educational Policy

C. E. Wintner, *Chairman*; D. A. Davis, M. Mihelich, D. Potter, S. M. Shumer

Subcommittee on Distinguished Visitors

R. Garcia-Castro, *Chairman*; S. G. Malard, C. G. Goff

Faculty Appointments (elected by the faculty)

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General Programs

H. Glickman, *Chairman*; C. Stegeman, B. Partridge

Student Standing and Programs

W. C. Davidson, *Chairman*; R. Luman, D. Potter, S. R. Waldman

Subcommittee on College Honors and Fellowships

J. R. Cary, *Chairman*; M. Santer, R. Desjardins, B. Cook

Special Faculty Assignments

Clerk of the Faculty, E. B. Bronner (1st semester)

Secretary of the Faculty, E. S. Rose

Faculty Marshals, D. G. Miller, J. P. Spielman

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Stephen G. Cary, *Acting President; Vice-President for Finance and Development*
B.A., Haverford College; M.A., Columbia University.

William W. Ambler, *Director of Admissions*
B.A., Haverford College.

William F. Balthaser, *Director of Development and Public Relations*
B.S., Temple University.

Dorothy I. Blanchard, *Director of Career Planning*
B.A., Bryn Mawr College; M.A., Temple University.

Elmer J. Bogart, *Superintendent of Buildings and Grounds*
Temple University Technical Institute.

Thomas D'Andrea, *Provost and Dean of the Faculty*
B.A. and Ph.D., University of Minnesota.

Delores R. Davis, *Recorder*
Associate in Science, Cushing Junior College.

Roberta M. Doan, *Conference Director*

Stevenson W. Fletcher, Jr., *Director of Campus Planning*
B.A., Pennsylvania State University.

Bruce Froehlke, *Assistant Director of Development and Alumni Affairs*
B.A., Haverford College.

John W. Gould, *Director of Alumni Relations*
B.A., Haverford College; M.A. and Ph.D., Yale University.

Samuel Gubins, *Associate Vice-President for Planning and Finance*
B.A., Reed College; Ph.D., Johns Hopkins University.

Diana Harrison, *Public Relations Officer*
B.A., University of Pennsylvania; M.S., Northwestern University.

Penelope C. Hinckley, *Coordinator of Women's Athletics*
B.S., Boston University; M.A., University of Connecticut

David J. Hoy, *Director of Financial Aid*
B.A., St. Mary's Seminary and University.

Gregory Kannerstein, *Acting Dean of Student Affairs*
B.A., Haverford College; M.A., University of Pennsylvania.

Gail Leftwich, *Assistant to the Acting President*
B.A., Bryn Mawr College.

Sharon T. Martin, *Assistant Director of Admissions*
B.A., Franklin and Marshall College.

William J. McCarthy, *Comptroller*
B.S., Temple University.

Charles Perry, *Associate Director of Development*

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David Potter, *Dean of the College and Affirmative Action Officer*

B.A., Haverford College; Ed.M., Temple University.

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B.A., Haverford College.

Karla Jeanne Spurlock, *Director of Minority Affairs*

B.A., Barnard College; M.A., Emory University.

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B.A., Swarthmore College.

Adolphus L. Williams, Jr.¹, *Dean of Student Affairs*

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Bette H. Williams, *Assistant Director of Admissions*

B.S., Hampton Institute; M.A., University of Virginia.

Stephen Wolf, *Business Administrator*

B.S., Temple University.

MEDICAL STAFF

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B.S., Ursinus College; M.D., University of Pennsylvania.

Margaret L. Gledhill, *Nurse Director*

R.N., Maine Eye and Ear Infirmary (Portland, Me.).

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Jane C. Widseth, *Director of Counseling*

A.B., University of Minnesota; M.A. and Ph.D., Boston University.

M. Lawrence Spoont, *Psychiatric Consultant*

B.S., Lehigh University; M.D., Northwestern University Medical School.

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B.A., Whittier College; M.A., Haverford College; Ph.D., University of Pennsylvania.

Barbara L. Curtis, *Quaker Collection Bibliographer*

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David A. Fraser, *Associate Librarian; Rare Book Librarian*

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Bjorg Miehle, *Catalog Revision Librarian*

University of Oslo; Graduate, Statens Bibliotekskole; B.S. (L.S.), Drexel University.

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B.A., Radcliffe College; M.S. (L.S.), Drexel University.

THE COMPUTER CENTER

William M. Baker, *Director*

B.A., Swarthmore College; M.A., University of Pennsylvania.

Marjorie Kohler, *Coordinator for Administrative Applications*

B.A., Wilson College.

Hazel C. Pugh, *Machine Room Supervisor*

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Department of Chemistry
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Department of Biochemistry
University of Wisconsin

Paul A. David

Department of Economics
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Queens College, CUNY, New York

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Division of Biological Sciences
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Rutgers University

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Department of Mathematics
Gesamthochschule Wuppertal

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Department of Chemistry
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Hervé Jacquet

Department of Mathematics
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H. Ronald Kaback

Senior Research Associate
Roche Institute of Molecular Biology

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and Medicine
Yale University

Norman R. Klinman

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Aaron Klug

Medical Research Council
Laboratory for Molecular Biology
Cambridge, England

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University of Warwick
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Baylor College of Medicine

Abdellatif Rahal
Algerian Ambassador to the
United Nations

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Wright Institute, Berkeley

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Middlesex, England

Joseph Karpينيا
Guitarist

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William Masselos
Juilliard School of Music and
Catholic University of America

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Rutherford College
University of Kent
Canterbury, England

Manuel Puig
Novelist

Harriet Rothstein
Concert Pianist

Charles Segal
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Brown University

Tu Wei-ming
Department of Chinese Philosophy
University of California

Martin Walser
Novelist and Critic

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Karl Otto Apel
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Bicentennial Festival of Poetry
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Charles Tomlenson
Kit Wright

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Department of Spanish
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Royal Shakespeare Co., London

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for Research on the Social
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Treasurer
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Haverford, Pa. 19041

John F. Gummere
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Haverford, Pa. 19041

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2130 Tryon Street
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3400 Centre Square West
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3400 Spruce Street
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Henry C. Evans
6635 Wissahickon Avenue
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3600 Chestnut Street
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Wm. Morris Maier
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John A. Silver
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119 Colonial Avenue
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TERM EXPIRES 1977

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167 Steeplechase Road
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Barbara S. Jacobson
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Stephen R. Miller
3400 Centre Square West
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Philadelphia, Pa. 19102

***Edward O. Shakespeare**
675 Sproul Road
Bryn Mawr, Pa. 19010

#Laird H. Simons, Jr.
William Amer Co.
215 Willow Street
Philadelphia, Pa. 19123

F. Joseph Stokes, Jr.
1012 Westview Street
Philadelphia, Pa. 19119

#John C. Whitehead
131 Old Chester Road
Essex Fells, N.J. 07021

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Philadelphia, Pa. 19103

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Philadelphia, Pa. 19110

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Martha Stokes Price

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Robert P. Roche

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Herman Somers

Woodrow Wilson School of
Public Policy
Princeton University
Princeton, N.J. 08540

Hon. Edmund B. Spaeth, Jr.

635 Westview Street
Philadelphia, Pa. 19119

David E. Stokes

630 Washington Lane
Jenkintown, Pa. 19046

***Edwin E. Tuttle**

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Philadelphia, Pa. 19106

TERM EXPIRES 1979

Henry C. Beerits

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Radnor, Pa. 19087

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1528 Walnut Street
Philadelphia, Pa. 19102

Earl G. Harrison, Jr.

Westtown School
Westtown, Pa. 19395

John B. Jones, Jr.

Covington & Burling
888 16th Street, N.W.
Washington, D.C. 20006

Stephen L. Klineberg

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Houston, Texas 77030

#Andrew L. Lewis, Jr.

Suite 525, One Plymouth Meeting
Plymouth Meeting, Pa. 19462

J. Howard Marshall

1320 Esperson Building
Houston, Texas 77002

Louis R. Matlack

55 E. Maple Avenue
Moorestown, N.J. 08057

*Alumni Representative

#Nominated by the Board of Managers

**FACULTY REPRESENTATIVES
TO BOARD OF MANAGERS**

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Haverford College
Haverford, Pa. 19041

Harvey Glickman

Haverford College
Haverford, Pa. 19041

Alternates

R. Bruce Partridge

Haverford College
Haverford, Pa. 19041

Marcel M. Gutwirth

Haverford College
Haverford, Pa. 19041

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TO BOARD OF MANAGERS**

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Thomas D. Sutton '78

Haverford College
Haverford, Pa. 19041

TERM EXPIRES 1979

Wayne Wynn '79

Haverford College
Haverford, Pa. 19041



SECTION **7**

ALUMNI

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The Alumni Association *as of May, 1977*

President

Timothy B. Golding '69
3317 Rodney Drive
Newtown Square, Pa. 19073

Vice President

R. Ronald Reno, Jr. '54
Venable, Baetjer and Howard
1800 Mercantile Trust & Bank Bldg.
Baltimore, Md. 21201

Executive Secretary

John Wells Gould '61
509 Hillendale Road
Chadds Ford, Pa. 19317

Executive Committee

Samuel Foley, Jr. '73
607 Lebanon Arms
Lebanon and Bryn Mawr Avenues
Philadelphia, Pa. 19131

Eugene F. Hogenauer '34
Westtown School
Westtown, Pa. 19395

Kenneth E. Kingham '29
426 Old Lancaster Road
Haverford, Pa. 19041

John M. Moon '43
130 Browning Lane
Rosemont, Pa. 19010

Steven Sieverts '56
644 Prospect Ave.
Princeton, N.J. 08540

David L. Wilson '33
412 Old Lancaster Road
Haverford, Pa. 19041

David L. Wilson, Jr. '67
1535 Bancroft Drive
West Chester, Pa. 19380

Charles Wolfinger '40
1900 Rittenhouse Square
Philadelphia, Pa. 19103

Alumni Representatives on the Board of Managers

John A. Cantrell '37
167 Steeplechase Road
Devon, Pa. 19333

Thomas B. Gerlach '37
Turner Construction Company
1528 Walnut Street
Philadelphia, Pa. 19102

Edward O. Shakespeare '49
675 Sproul Road
Bryn Mawr, Pa. 19010

Edwin E. Tuttle '49
514 Pine Street
Philadelphia, Pa. 19106

Note: The above is subject to
revision by election in Fall, 1977.

Alumni Clubs *as of May, 1977*

HAVERFORD CLUB OF CHICAGO

John D. Margolis '63, Alumni Council
Department of English, Northwestern University, Evanston, Ill. 60201

HVERFORD SOCIETY OF CONNECTICUT

David W. Morgan '60, *President and Alumni Council*
110 Mount Vernon St., Middletown, Conn. 06457

HVERFORD SOCIETY OF DELAWARE

Clayton E. Ranck '38, *President and Alumni Council*
Box 321, R.D. 1, Hockessin, Del. 19707

Marshall C. Guthrie, Jr. '37, *Vice President*
708 Princeton Road, Wilmington, Del. 19807

James C. French '51, *Secretary/Treasurer*
2616 Kimbrough Drive, Talley Farms, Wilmington, Del. 19810

HVERFORD SOCIETY OF EASTERN OHIO

Michael R. Weil '61, *President and Alumni Council*
2215 Devonshire Road, Shaker Heights, Ohio 44120

HVERFORD SOCIETY OF ERIE

David D. Dunn, M.D. '35, *President and Alumni Council*
5520 Wolf Road, Erie, Pa. 16505

HVERFORD SOCIETY OF MARYLAND

Stephen M. Cordi '65, *President and Alumni Council*
4 Hillside Road, Baltimore, Md. 21210

Michael C. Warlow '66, *Secretary/Treasurer*
1609 Park Avenue, Baltimore, Md. 21217

HVERFORD SOCIETY OF MICHIGAN

Peter K. C. Zavitz '57, *President and Alumni Council*
700 Orchard Ridge Road, Bloomfield Hills, Mich. 48013

HVERFORD SOCIETY OF MISSOURI

J. Peter Schmitz '53, *President and Alumni Council*
6401 Wydown, St. Louis, Mo. 63105

HAVERFORD SOCIETY OF NEW ENGLAND

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91 Main Street, P.O. Box 540, Concord, Mass. 01742
- Leigh M. Gelser '58, *Vice President***
20 Emerson Road, Wellesley Hills, Mass. 02181
- Gerald C. Schwertfeger '66, *Secretary***
69½ Florence Street, Apt. 2, Somerville, Mass. 02145
- Frederick W. Weil '65, *Treasurer***
11 Hawthorne Street, Somerville, Mass. 02144
- Richard L. Grossman '66, *Alumni Council***
33 Leicester Street, Brookline, Mass. 02146
-

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104 Grover Avenue, Princeton, N.J. 08540
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19 Winfield Road, Princeton, N.J. 08540
- James B. Hastings, M.D. '50, *Alumni Council***
15 Tyson Lane, Princeton, N.J. 08540
-

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- David M. Kies '65, *Secretary***
22 Chestnut Avenue, Larchmont, N.Y. 10538
- Charles B. Conn, Jr. '35, *Treasurer***
Leisure Village West, 3 Gramercy Lane, Lakehurst, N.J. 08733
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Marsh and McLennan, Inc., 3 Embarcadero, P.O. Box 3880, San Francisco, Cal. 94119
- Andrew D. Lucine, M.D. '50, *Alumni Council***
18206 Daves Avenue, Monte Sereno, Cal. 95030

HAVERFORD SOCIETY OF THE NORTHWEST

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313 S. 12th Street, Philadelphia, Pa. 19107
Charles H. O'Donnell '73, *Acting Treasurer*
3900 Walnut Street, Apt. 364, Philadelphia, Pa. 19104

ROCKY MOUNTAIN HAVERFORD CLUB

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879 S. Gaylord, Denver, Colo. 80209

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1405 North Laurel Avenue, Los Angeles, Cal. 90046

HAVERFORD CLUB OF SOUTHERN FLORIDA

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Bradford, Williams, McKay, Kimbrell, Hamann, 101 E. Flagler Street, Miami, Fla. 33131
Ian G. Walker '50, *Vice President*
8116 N.W. 68th Avenue, Ft. Lauderdale, Fla. 33319

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702 Fair Foundation Bldg., Tyler, Texas 75701

HAVERFORD SOCIETY OF WASHINGTON, D.C.

Arthur W. Leibold, Jr. '53, *President and Alumni Council*
4501 33rd Street, N., Arlington, Va. 22207
Gary K. Olsen '61, *Secretary*
501 S. Royal Avenue, Front Royal, Va. 22630
Allan B. Fay '27, *Treasurer*
6116 Overlea Road, Washington, D.C. 20016

HAVERFORD SOCIETY OF WESTERN PENNSYLVANIA

William McC. Houston '44, *Alumni Council*
Backbone Road, Sewickley Heights, Pa. 15143

ALUMNI ADMISSIONS INFORMATION PROGRAM

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Richard Grossman '66

33 Leicester Street, Brookline, Mass. 02146

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B.A. Sociology/Anthropology



SECTION

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Directory for Correspondence

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