

**ANNUAL REPORT OF THE COMMITTEE ON GRADUATE STUDIES
TO THE FACULTY OF ARTS AND SCIENCES**

October 24, 1990

The narrative section of this report treats the following topics: I. New Programs; II. Graduate Aid; III. The use of "Local" Resources; IV. Periodic Evaluations; V. Degrees Awarded VI. Awards. VII. Conclusion. It is followed by a statistical profile, and a summary of changes in the curriculum.

I. NEW PROGRAMS

1. Applied Science. The State Council for Higher Education approved the College's Statement of Readiness to offer the Degree of Doctor of Philosophy in Applied Science. Under the direction of Robert Orwoll of Chemistry, the university's newest doctoral program officially began on July 1. Six doctoral students are currently enrolled: one in Applied Mathematics, one in Accelerator Science; one in Non-Destructive Testing, and three in Polymer Chemistry. Agreements establishing procedures for appointing research scientists at NASA-Langley and at CEBAF as adjunct faculty members in Applied Science have been drafted and are awaiting final approval by the allied institutions. The Applied Science Committee has formulated degree requirements for all students in the program, and faculty responsible for sub-specialties within the program are developing specific requirements for students enrolled in those fields.

During the 1989-90 academic year, a committee chaired by Professor R. Orwoll, Acting Director of Applied Science, and including Professors S. Park, Computer Science, D. Thompson, Chemistry, R. Scholnick, Graduate Dean, R. Welsh, Physics; H. Grunder, Director, CEBAF; and R. Petersen, Director, NASA-Langley conducted an international search for the CSX Professor of Applied Science. This individual would also serve as program director. Approximately 87 applications were received, and the College made an offer in January to a distinguished scientist. However, this individual declined the offer in late June to accept a position in Europe.

The initial state budget for the current biennium included a provision for nine new positions and approximately \$700,000 annually in new funds for the Applied Science program. However, because of the projected budget shortfall, these funds, which were to become available beginning in the 1991-92 academic year, have been withdrawn. The Applied Science Committee, the participating external institutions, and the Administration are working to develop the program within the constraints of the new budgetary realities. The Applied Science committee recognizes that in the immediate future growth for the program must come from renewed efforts to cultivate the extraordinary resources already in place, at the College and at NASA-Langley and CEBAF.

2. Public Policy. At its meeting in February, 1990 the Faculty of Arts and Sciences unanimously approved a proposal for a program leading to the degree of Master of Public Policy. The proposal was approved by the Board of Visitors at its meeting in April and submitted to the State Council on September 1. The State Council staff will make its recommendation to the Council in February, with formal action expected in March. The Public Policy committee, chaired by David Finifter of Economics, plans to admit the first group of students for the 1991-92 year. If the program is not approved, it is expected that students will be admitted to the M.A. program in Government, which will contain a public policy track identical to the curriculum of the proposed MPP program.

II. GRADUATE AID

The major constraint facing all of our graduate programs is an inadequate budget for financial aid. In some programs, at both the Master's and Doctoral levels, the standard assistantship falls substantially below that offered by comparable programs elsewhere. To remain competitive, departments face the difficult decision of either increasing the size of the assistantship and thereby supporting fewer students or allowing the assistantship to remain low and hope that students will elect William and Mary for other reasons. For the current year the Departments of Computer Science, Physics, and American Studies elected to raise stipends to remain competitive, thereby placing great strain on their departmental budgets and limiting the number of students who could be supported.

For the 1990-91 academic year, the budget for graduate financial aid from the College remained essentially unchanged, despite increases in tuition and the cost of living. However, for the first time graduate students in Arts and Sciences have been eligible to participate in a new program, Virginia Work Study, which matches wages paid to Virginia students who are employed as interns at non-profit educational and social service agencies. Graduate students from English, Anthropology, American Studies, Government, Sociology, and Psychology are currently being supported for their work at such external agencies as Colonial Williamsburg, the National Center for State Courts, James City County, Eastern State Hospital, and the Veterans Administration Hospital in Hampton. These agencies are aware of the special research capabilities of the students and these assignments have been designed to support the student's academic development. The Virginia Work Study program has generated approximately \$80,000 in new support for graduate students in Arts and Sciences. Because of the possibility of continuing reductions in state support for higher education, we continue

to look for external support for graduate students, from the agencies mentioned above and from others.

III. "LOCAL RESOURCES"

In the modern era, graduate work at William and Mary in the Arts and Sciences has received critical support from local resources. A major impetus for graduate work in history was the availability of scholarly resources by Colonial Williamsburg and the Institute of Early American History and Culture. The doctoral program in Physics received important support during its initial years from the old Space Radiation Effects Laboratory, located in Newport News on the site of the CEBAF, which now provides important support for our programs in Physics, Applied Science, and Computer Science. Similarly, graduate work in computer science, first under the old Applied Science program and now under the Department of Computer Science, has received essential support from NASA-Langley. The master's program in psychology has long worked closely with Eastern State Hospital, which funds the stipends of six students each year and provides an opportunity for these students and others to apply psychological theory in a clinical setting. These external agencies support the College in many ways: through grants to both students and faculty; the teaching of specialized courses; the supervision of research of graduate students by members of their professional staffs; and through access to unique equipment and resources for research. At the same time, faculty and students from the College contribute to the work of these agencies in important ways. While the respective mandates of a university and an entity such as NASA-Langley or the National Center for State Courts are different, there is sufficient overlap that each benefits enormously from interactions with the other. Graduate students play an essential role in this interaction. Recent developments at these and other external agencies provide the necessary, but not sufficient, conditions for continued growth in our programs.

To us at the College such entities as the Institute of Early American History, CEBAF, the National Center for State Courts, ICASE, or NASA-Langely are "local," being situated either on the campus itself or within a short drive. Yet, each is national, indeed international, in scope and each is engaged in research at the forefront of its field. These external agencies offer extraordinary opportunities for graduate students to work at the forefront of their fields and to learn from the professional staffs of the agency as well as from College faculty. However, we are aware of potential abuses of these arrangements. Students may be treated simply as employees, their research assignments determined by the needs of the agency, not by their own needs as graduate students. Therefore, College faculty, in making such placements, continue to be responsible for the students' academic progress. Similarly, no graduate program which is totally or

even largely dependent on a local agency for financial or scholarly support can take its place as a leading academic program. Consequently, each of our programs is conscious of the need to find a productive balance between contributing to--and drawing from--the research program of an external agency and establishing an autonomous research and teaching program of its own.

We are both excited and challenged by new research initiatives being undertaken at the external agencies: in such fields as mental disability and the law at the National Center, in the application of the methods of non-destructive testing to the problem of aging aircraft at NASA, in parallel computing at ICASE, in new programs of materials science research at CEBAF, to mention but a few. At a time when the state is not able to provide major new support for faculty positions, research equipment, and graduate stipends, our faculty involved in the development of graduate programs have redoubled their efforts to work closely with our scholarly and professional colleagues at external agencies to develop new programs of research and graduate education.

IV. EVALUATIONS

During the year the Graduate Studies Committee undertook evaluations of the programs in Sociology and Government. Professor R. Rappoport chaired the Sociology review committee, which included Professors H. Krakauer, Physics, and Professor S. Ito from the Department. Mayer Zald, Professor of Sociology at the University of Michigan, served as outside consultant. The report has been accepted by the committee and is on file both in the Graduate Studies office and the College archives. Professor Carl Moody chairs the committee for the Government evaluation, which included Professors Champion, Physics, and Baxter from the Department. Professor Peter Lange, Duke, is the outside consultant. The Committee will review the report and the Department's response at its November meeting. The graduate program in Mathematics will be evaluated in 1991-92.

V. DEGREES AWARDED

During the 1989-90 academic year, this faculty awarded some 138 advanced degrees in Arts and Science: 14 Ph.D.s, 87 M.A.s, and 37 M.S.s. This represents more than a 50% increase from the year before, when 90 were awarded. We are especially pleased with the increase to 14 Ph.D.s., which surpasses the previous high of 9, awarded in both 1982-83 and 1983-84. Also during 1989-90, there were 14 Doctor of Psychology degrees awarded through the Virginia Consortium for Professional Psychology.

VI. INDICATIONS OF QUALITY

Commonwealth Fellows. As we reported last year, SCHEV annually holds a competition to provide public recognition and financial support for outstanding Virginians who are doctoral candidates in the six state-supported doctoral institutions. The number of students each university is allowed to nominate is based upon the proportionate size of its doctoral programs. William and Mary was again allowed only five nominees. Fifty students in all were considered, and again this year three William and Mary doctoral students were selected for these awards, which provide a \$5,000 stipend:

Mary Ferrari, M.A. History (ODU); Ph.D. cand. in History;
Nancy Parrish, M.A. English; Ph.D. cand. in American Studies;
Beverly Peterson, M.A. English; Ph.D. cand. in American Studies.

That William and Mary students garnered 23% of the awards while constituting 10% of the nominees reflects the high quality of our students and programs. Last year two of our three winners were from a new program, Computer Science, which began offering the Ph.D. only in 1986. This year two were from an even newer program, American Studies, which began officially in 1988. Both Departments have made considerable progress in a short time.

VII. CONCLUSION

We are all aware of the difficulties caused by the dramatic shortfall in state revenues. Each of our graduate programs faces severe constraints, especially in the critical area of financial resources to support graduate students. For the current academic year our ability to take advantage of such programs as Virginia Work Study has helped qualifying departments to support some students. At the same time, the new associations with such agencies as the National Center for State Courts and the Veterans Administration in Hampton hold promising opportunities for research, both for students and faculty. As mentioned above, graduate program directors and individual faculty are redoubling their efforts to bring external support to the College for the support of graduate students and to take maximum advantage of the extraordinary opportunities which our "local" resources afford. Our ability to work productively with these agencies is especially important in these difficult budgetary times.

II. DATA ON STUDENTS AND DEGREES

A. ADMISSIONS - Fall Semester 1990

<u>DEPARTMENT</u>	<u>*NUMBER APPLICANTS</u>	<u>NUMBER ACCEPTED</u>	<u>NUMBER MATRICULATED</u>
<u>AMERICAN STUDIES</u>	123	55	26
<u>ANTHROPOLOGY</u>	31	18	13
<u>APPLIED SCIENCE</u>	12	7	6
<u>BIOLOGY</u>	36	15	7
<u>CHEMISTRY</u>	17	11	9
<u>COMPUTER SCIENCE</u>	208	85	7
<u>ENGLISH</u>	110	30	21
<u>GOVERNMENT</u>	79	24	12
<u>HISTORY</u>	112	24	20
<u>MATHEMATICS</u>	59	47	8
<u>PHYSICS</u>	219	31	10
<u>PSYCHOLOGY</u>	53	13	13
<u>SOCIOLOGY</u>	19	5	5
<u>TOTALS</u>	1,078	370	157
<u>PSY.D. PROGRAM</u>	196	25	10

*Number of graduate applications received in the graduate office and application fees paid or waived, for September admission only.

**Total in Consortium.

B. AVERAGE UNDERGRADUATE GRADE POINT AVERAGE
OF ENTERING STUDENTS (4.0 SCALE)

DEPARTMENT	FALL 1988	FALL 1989	FALL 1990
AMERICAN STUDIES	3.42 (22 of 23)	3.23 (14 of 15)	3.29 (22 of 26)
ANTHROPOLOGY	3.25 (8 of 10)	3.35 (7 of 8)	3.20 (11 of 13)
APPLIED SCIENCE	---	---	3.18 (4 of 6)
BIOLOGY	3.13	3.04	3.20
CHEMISTRY	2.65	2.73 (6 of 7)	2.78
COMPUTER SCIENCE	3.35	3.28 (12 of 13)	3.63
ENGLISH	3.31 (21 of 22)	3.32	3.38
GOVERNMENT	3.20 (7 of 9)	3.20 (6 of 8)	3.33
HISTORY	3.47	3.40 (20 of 22)	3.52 (18 of 20)
MATHEMATICS	3.64 (4 of 5)	3.08 (9 of 11)	3.33 (7 of 8)
PHYSICS	3.20	3.35 (10 of 11)	3.41 (8 of 10)
PSYCHOLOGY	3.19	3.68	3.37
PSY.D. PROGRAM	3.23	3.52	3.57
SOCIOLOGY	2.85	3.25 (6 of 7)	3.16

C. AVERAGE GRADUATE RECORD EXAMINATION SCORES
OF ENTERING STUDENTS

DEPARTMENT	FALL 1989			FALL 1990			
	VERB	MATH	ADV	VERB	MATH	ANALY	ADV
AMERICAN STUDIES	623 (10 of 15)	563 (10 of 15)	---	648 (18 of 26)	548 (18 of 26)	594 (18 of 26)	---
ANTHROPOLOGY	628 (5 of 8)	586 (5 of 8)	---	544 (7 of 13)	541 (7 of 13)	597 (7 of 13)	---
APPLIED SCIENCE	---	---	---	481 (3 of 6)	440 (3 of 6)	566 (3 of 6)	NRD
BIOLOGY	550	616	681 (69%)	584	592	630	578 (36%)
CHEMISTRY	NRD	NRD	NRD	NRD	NRD	NRD	NRD
COMPUTER SCIENCE	499	689	NRD	668	740	750	NRD
ENGLISH	631	587	549 (55%)	624	553	626	508 (41%)
GOVERNMENT	578	588	NRD	551 (11 of 12)	574 (11 of 12)	597 (11 of 12)	NRD
HISTORY	634	612	554 (73%) (19 of 22)	742	614	651	559 (75%) (18 of 20)
MATHEMATICS	NRD	NRD	NRD	566 (6 of 8)	698 (6 of 8)	615 (6 of 8)	NRD
PHYSICS	511	704	724 (71%) (10 of 11)	522	751	665	724 (71%) (9 of 10)
PSYCHOLOGY	594	556	630 (74%) (6 of 8)	576	577	615	574 (62%) (9 of 13)
PSY.D. PROGRAM	573	538	592 (70%)	567	557	590	623 (79%)
SOCIOLOGY	542 (5 of 7)	532 (5 of 7)	NRD	542	502	596	---

NRD: No reliable data

D. REGISTERED REGULAR & PROVISIONAL GRADUATE STUDENTS*
Fall 1988 to Fall 1990

DEPARTMENT	FALL 1988	SPRING 1989	FALL 1989	SPRING 1990	FALL 1990
AMERICAN STUDIES	32	31	33	31	43
ANTHROPOLOGY	17	14	12	16	17
APPLIED SCIENCE	0	0	0	1	6
BIOLOGY	19	17	16	18	18
CHEMISTRY	9	8	8	10	10
COMPUTER SCIENCE	68	63	56	61	57
ENGLISH	30	29	23	24	27
GOVERNMENT	11	11	11	11	19
HISTORY	46	47	55	54	59
MATHEMATICS	15	12	17	16	20
PHYSICS	48	48	48	46	47
PSYCHOLOGY	15	14	18	16	19
SOCIOLOGY	10	10	11	10	12
A & S TOTALS	320	304	308	314	344
PSY.D. PROGRAM**	60	55	50	48	51

*Totals include both full-time and part-time registration.

**Total in Consortium.

NOTE: The Computer Science department now enrolls most of the students listed previously under Applied Science. The Applied Science program now enrolls interdisciplinary students in the sciences.

E. GRADUATE DEGREES CONFERRED 1989-90

DEPARTMENT	DEGREE	AUGUST 1989	DECEMBER 1989	MAY 1990	TOTAL
AMERICAN STUDIES	M.A.	2	4	5	11
ANTHROPOLOGY	M.A.	0	3	6	9
APPLIED SCIENCE	M.S.	0	0	0	0
BIOLOGY	M.A.	4	4	2	10
CHEMISTRY	M.A.	2	5	0	7
	M.S.	0	0	0	0
COMPUTER SCIENCE	M.S.	3	9	7	19
	Ph.D.	2	0	1	3
ENGLISH	M.A.	1	4	4	9
GOVERNMENT	M.A.	3	2	3	8
HISTORY	M.A.	5	3	8	16
	Ph.D.	1	0	4	5
MATHEMATICS	M.A.	0	1	0	1
	M.S.	0	0	4	4
PHYSICS	M.A.	0	0	0	0
	M.S.	1	1	12	14
	Ph.D.	2	2	2	6
PSYCHOLOGY	M.A.	3	1	7	11
	Psy.D.**	10	2	2	14
SOCIOLOGY	M.A.	2	1	2	5
TOTALS	M.A.	22	28	37	87
	M.S.	4	10	23	37
	Ph.D.	5	2	7	14
	Psy.D.**	10	2	2	14

TOTAL NUMBER OF DOCTORATES CONFERRED
AUGUST 1989 THROUGH MAY 1990

Arts and Sciences - 14 Ph.D., 14 Psy.D.**
Education - 13 Ed.D.
Marine Science - 9 Ph.D.

*TOTAL NUMBER OF M.A. DEGREES IN EDUCATION CONFERRED
AUGUST 1989 THROUGH MAY 1990

Secondary School Teaching - 15

*Degree candidates for the M.A. in Education (Secondary School Teaching) take 12 hours of course work in Arts and Sciences.
**Total in the Consortium.

F. GRADUATE DEGREES AWARDED DURING THE LAST 10 YEARS*
(August - June)

DEPARTMENT	PROGRAM INITIATED	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	AUG. 1990	TOTAL SINCE AUG. 1980
AMERICAN STUDIES	1982-M.A.				1	4	5	2	3	4	11	3	33
ANTHROPOLOGY	1979-M.A.	2	2	3	5	1	4	8	4	8	9	1	47
APPLIED SCIENCE	1970-M.S.	14	9	9	10	1	2	0	0	0	0	1	46
BIOLOGY	1963-M.A.	9	11	6	5	8	7	2	7	5	10	3	73
CHEMISTRY	1964-M.A./M.S.	2	6	1	2	9	5	5	4	5	7	0	46
COMPUTER SCIENCE	1984-M.S. 1986-Ph.D.					9	10	19	10 1	15 0	19 3	1 0	83 4
ENGLISH	1970-M.A.**	13	9	6	7	9	5	8	9	10	9	9	94
GOVERNMENT	1966-M.A.	4	5	6	1	1	5	3	6	8	8	3	50
HISTORY	1955-M.A. 1967-Ph.D.	5 1	6 3	10 2	7 3	11 2	5 1	14 4	13 1	7 1	16 5	1 0	95 23
MATHEMATICS	1961-M.A./M.S.	5	3	5	6	6	4	7	2	9	5	1	53
PHYSICS	1959-M.A./M.S. 1964-Ph.D.	9 2	6 5	5 7	10 6	11 5	9 6	5 4	8 5	6 3	14 6	0 1	83 50
PSYCHOLOGY	1953-M.A. 1978-Psy.D.***	5	5	7 5	2 9	9 4	5 8	4 8	6 8	3 10	11 14	1 4	58 70
SOCIOLOGY	1967-M.A.	4	4	6	2	5	2	3	4	6	5	0	41
A & S TOTALS:	M.A./M.S.	72	66	64	58	84	68	80	76	86	124	24	802
	Ph.D.	3	8	9	9	7	7	8	7	4	14	1	77
	Psy.D.***			5	9	4	8	8	8	10	14	4	70

*See Table E for M.A. in Education degrees.

**Earlier program suspended in 1963.

***Total in the Consortium.

III. CURRICULUM CHANGES

Approved 1989-90

COMMITTEE ON GRADUATE STUDIES

NEW COURSE: College Course 503.

CHANGE: Revised the grading scale by adding + and - grades at the graduate level:

A = 4.0	A- = 3.7	B+ = 3.3	B = 3.0	B- = 2.7
C+ = 2.3	C = 2.0	C- = 1.7	D+ = 1.3	D = 1.0
D- = .7	F carries no credit			

APPLIED SCIENCE

NEW COURSES: 571. Polymer Science I. Fall (3). Mr. Starnes.

572. Polymer Science II. Spring (3). Mr. Orwoll

COMPUTER SCIENCE

CHANGES: 580. Research. Changed from 2 credits to variable credit.

590. Readings in Computer Science. Changed from graded course to pass/fail.

SOCIOLOGY

NEW COURSES: 501. Social Research II: Statistical Analysis. Fall (3). Mr. Faia and Mr. Ito.

502. Modern Organizations. Fall and Spring (3). Mr. Kreps and Mr. Kerner.

503. Global Environmental Issues. Fall or Spring (3). Mr. Kerner.

Committee on Graduate Studies:

Henry Aceto, VIMS
Norman Barka, Anthropology
Donald Baxter, Government
Judy Ewell, History
David Finifter, Public Policy
Robert Gross, American Studies
Satoshi Ito, Sociology
Gerald Johnson, Geology
Richard Kiefer, Chemistry

Sidney Lawrence, Mathematics
Martin Mathes, Biology
Robert Orwoll, Applied Science
Richard Prosl, Computer Science
Ellen Rosen, Psychology
Eugene Tracy, Physics
Neill Watson, Clinical Psychology
Peter Wiggins, English
Robert J. Scholnick, Chair