

UNIVERSITY FACULTY SENATE

SUMMARY OF AGENDA

November 5, 1984

- I. ADOPTION OF THE AGENDA
 - II. APPROVAL OF THE MINUTES: September 10 and October 1, 1984
 - III. REMARKS BY PRESIDENT TRABANT and/or PROVOST CAMPBELL
 - IV. ANNOUNCEMENTS
 1. Professor Haslett, Department of Communication
Chair (1982-84) Commission on the Status of Women

"Report on the Institutional Self-Study on Sex Equity"
 2. Senate President Kuhlman
- ANNOUNCEMENTS FOR CHALLENGE
1. Revision of the B.S. in Human Resources
 2. Revision of the B.S. in Accounting
 3. Revision of the B.A. in Psychology
 4. Revision of the B.S. in Physical Education Studies
- V. OLD BUSINESS - none
 - VI. NEW BUSINESS
 - *A. Recommendation for a change in the charge to the Committee on Student Life
 - B. Recommendation for final approval of the M.S. and Ph.D. in Operations Research
 - C. Introduction of new business .

*Bylaw change; requires a 2/3 vote of those senators present and voting.





University of Delaware

UNIVERSITY FACULTY SENATE
301 HULLIHEN HALL
NEWARK, DELAWARE 19716

(302) 451-2921

October 29, 1984

TO: All Faculty Members

FROM: Mark W. Huddleston, Vice President *MWH*
University Faculty Senate

SUBJECT: Regular Faculty Senate Meeting, November 5, 1984

In accordance with section IV, paragraph 6 of the Constitution, the regular meeting of the University Faculty Senate will be held on Monday, November 5, 1984 at 4:00 p.m. in room 110 Memorial Hall.

AGENDA

- I. Adoption of the Agenda.
- II. Approval of the Minutes of the Senate meetings of September 10 and October 1, 1984.
- III. Remarks by President Trabant and/or Provost Campbell.
- IV. Announcements
 1. Professor Haslett, Department of Communication
Chair (1982-84) Commission on the Status of Women
"Report on the Institutional Self-Study on Sex Equity"
 2. Senate President Kuhlman

Announcements for Challenge

1. Revision of the Bachelor of Science in Human Resources:
Nursery-Kindergarten Education (Attachment 1)
[This item was withdrawn from the October 1, 1984 Agenda.]

2. Revision of the Bachelor of Science in Accounting (Attachment 2)
3. Revision of the Bachelor of Arts in Psychology: Major and Minor (Attachment 3)
4. Revision of the Bachelor of Science in Physical Education Studies (Attachment 4)

V. Old Business - None

VI. New Business

- A. A recommendation from the Committee on Committees (A. Mooney, chair) to change the charge to the Committee on Student Life.

WHEREAS, the current structure of the Committee on Student Life includes only one graduate student representative; and

WHEREAS, it is important to encourage continuity in the representation of graduate student interests on matters before this committee,

BE IT RESOLVED,

that the University Faculty Bylaws, Section III: Standing Committee System of the Faculty and its Senate; Committee on Student Life, second paragraph (page I-24 of the current Faculty Handbook) shall read:

This committee shall consist of two designees of the Vice President for Student Affairs; one representative of the Office of Graduate Studies, designated by the Coordinator for Graduate Studies; four faculty members, one of whom shall be chairperson; three undergraduate students; and one graduate student appointed by the Committee on Graduate Studies.

[Note: underlined material is to be added; the complete current charge to the committee may be found in Attachment 5.]

- B. A recommendation from the Coordinating Committee on Education (U.D. Toensmeyer, chair), with the concurrence of the Committee on Graduate Studies, for final approval of the programs for and degrees of Master of Science and Doctor of Philosophy in Operations Research. (Attachment 6)

[Note: these programs and degrees were provisionally approved by the Senate on April 10, 1978; provisional approval was extended for one year on March 1, 1982.]

RESOLVED, that the Faculty Senate approves the permanent establishment of programs for and degrees of Master of Science and Doctor of Philosophy in Operations Research.

- C. Such items as may come before the Senate. (No motion introduced at this time may be acted upon until the next meeting of the Senate.)

/b

Attachments: Committee Activity List

1. Revisions of the B.S. in Human Resources: Nursery-Kindergarten Education
2. Revision of the B.S. in Accounting
3. Revision of the B.A. in Psychology
4. Revision of the B.S. in Physical Education Studies
5. Present charge to the Committee on Student Life
6. Operations Research Program

Year	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																				
Population	150,000,000	155,000,000	160,000,000	165,000,000	170,000,000	175,000,000	180,000,000	185,000,000	190,000,000	195,000,000	200,000,000	205,000,000	210,000,000	215,000,000	220,000,000	225,000,000	230,000,000	235,000,000	240,000,000	245,000,000	250,000,000	255,000,000	260,000,000	265,000,000	270,000,000	275,000,000	280,000,000	285,000,000	290,000,000	295,000,000	300,000,000	305,000,000	310,000,000	315,000,000	320,000,000	325,000,000	330,000,000	335,000,000	340,000,000	345,000,000	350,000,000	355,000,000	360,000,000	365,000,000	370,000,000	375,000,000	380,000,000	385,000,000	390,000,000	395,000,000	400,000,000	405,000,000	410,000,000	415,000,000	420,000,000	425,000,000	430,000,000	435,000,000	440,000,000	445,000,000	450,000,000	455,000,000	460,000,000	465,000,000	470,000,000	475,000,000	480,000,000	485,000,000	490,000,000	495,000,000	500,000,000	505,000,000	510,000,000	515,000,000	520,000,000	525,000,000	530,000,000	535,000,000	540,000,000	545,000,000	550,000,000	555,000,000	560,000,000	565,000,000	570,000,000	575,000,000	580,000,000	585,000,000	590,000,000	595,000,000	600,000,000	605,000,000	610,000,000	615,000,000	620,000,000	625,000,000	630,000,000	635,000,000	640,000,000	645,000,000	650,000,000	655,000,000	660,000,000	665,000,000	670,000,000	675,000,000	680,000,000	685,000,000	690,000,000	695,000,000	700,000,000	705,000,000	710,000,000	715,000,000	720,000,000	725,000,000	730,000,000	735,000,000	740,000,000	745,000,000	750,000,000	755,000,000	760,000,000	765,000,000	770,000,000	775,000,000	780,000,000	785,000,000	790,000,000	795,000,000	800,000,000	805,000,000	810,000,000	815,000,000	820,000,000	825,000,000	830,000,000	835,000,000	840,000,000	845,000,000	850,000,000	855,000,000	860,000,000	865,000,000	870,000,000	875,000,000	880,000,000	885,000,000	890,000,000	895,000,000	900,000,000	905,000,000	910,000,000	915,000,000	920,000,000	925,000,000	930,000,000	935,000,000	940,000,000	945,000,000	950,000,000	955,000,000	960,000,000	965,000,000	970,000,000	975,000,000	980,000,000	985,000,000	990,000,000	995,000,000	1,000,000,000
GDP	100,000,000,000	110,000,000,000	120,000,000,000	130,000,000,000	140,000,000,000	150,000,000,000	160,000,000,000	170,000,000,000	180,000,000,000	190,000,000,000	200,000,000,000	210,000,000,000	220,000,000,000	230,000,000,000	240,000,000,000	250,000,000,000	260,000,000,000	270,000,000,000	280,000,000,000	290,000,000,000	300,000,000,000	310,000,000,000	320,000,000,000	330,000,000,000	340,000,000,000	350,000,000,000	360,000,000,000	370,000,000,000	380,000,000,000	390,000,000,000	400,000,000,000	410,000,000,000	420,000,000,000	430,000,000,000	440,000,000,000	450,000,000,000	460,000,000,000	470,000,000,000	480,000,000,000	490,000,000,000	500,000,000,000	510,000,000,000	520,000,000,000	530,000,000,000	540,000,000,000	550,000,000,000	560,000,000,000	570,000,000,000	580,000,000,000	590,000,000,000	600,000,000,000	610,000,000,000	620,000,000,000	630,000,000,000	640,000,000,000	650,000,000,000	660,000,000,000	670,000,000,000	680,000,000,000	690,000,000,000	700,000,000,000	710,000,000,000	720,000,000,000	730,000,000,000	740,000,000,000	750,000,000,000	760,000,000,000	770,000,000,000	780,000,000,000	790,000,000,000	800,000,000,000	810,000,000,000	820,000,000,000	830,000,000,000	840,000,000,000	850,000,000,000	860,000,000,000	870,000,000,000	880,000,000,000	890,000,000,000	900,000,000,000	910,000,000,000	920,000,000,000	930,000,000,000	940,000,000,000	950,000,000,000	960,000,000,000	970,000,000,000	980,000,000,000	990,000,000,000	1,000,000,000,000																																																																																
Per Capita GDP	666.67	709.68	750.00	787.88	823.53	857.14	888.89	918.18	945.95	972.22	1,000.00	1,028.57	1,057.14	1,085.71	1,114.29	1,142.86	1,171.43	1,200.00	1,228.57	1,257.14	1,285.71	1,314.29	1,342.86	1,371.43	1,400.00	1,428.57	1,457.14	1,485.71	1,514.29	1,542.86	1,571.43	1,600.00	1,628.57	1,657.14	1,685.71	1,714.29	1,742.86	1,771.43	1,800.00	1,828.57	1,857.14	1,885.71	1,914.29	1,942.86	1,971.43	2,000.00	2,028.57	2,057.14	2,085.71	2,114.29	2,142.86	2,171.43	2,200.00	2,228.57	2,257.14	2,285.71	2,314.29	2,342.86	2,371.43	2,400.00	2,428.57	2,457.14	2,485.71	2,514.29	2,542.86	2,571.43	2,600.00	2,628.57	2,657.14	2,685.71	2,714.29	2,742.86	2,771.43	2,800.00	2,828.57	2,857.14	2,885.71	2,914.29	2,942.86	2,971.43	3,000.00	3,028.57	3,057.14	3,085.71	3,114.29	3,142.86	3,171.43	3,200.00	3,228.57	3,257.14	3,285.71	3,314.29	3,342.86	3,371.43	3,400.00	3,428.57	3,457.14	3,485.71	3,514.29	3,542.86	3,571.43	3,600.00	3,628.57	3,657.14	3,685.71	3,714.29	3,742.86	3,771.43	3,800.00	3,828.57	3,857.14	3,885.71	3,914.29	3,942.86	3,971.43	4,000.00																																																							

COMMITTEE ACTIVITIES REPORT

OCTOBER 1984

ACADEMIC FREEDOM, COMMITTEE ON (Mark Sharnoff)

Considering, in coordination with Committee on Student Life, the Report on Academic Honesty.

ADJUNCT ACADEMIC AFFAIRS, COMMITTEE ON (Steven Sidebotham)

No items currently under consideration.

EDUCATION, COORDINATING COMMITTEE ON (U. Carl Toensmeyer)

1. Discussing revision of Graduate Grading System.
2. Reviewing course approval process.

EDUCATIONAL INNOVATION AND PLANNING, COMMITTEE ON (Charles Gilbert)

Committee has not yet met.

FACULTY WELFARE AND PRIVILEGES, COMMITTEE ON (Mary Lou Liprie)

Organizational meeting scheduled for October 31.

GRADUATE STUDIES, COMMITTEE ON (Jeffrey Raffel)

1. Reviewing permanent status of MS in Accounting.
2. Discussing draft policy allowing readmission of previously terminated graduate students.
3. Reviewing permanent status of Ph.D. in Linguistics.

LIBRARY COMMITTEE (George Basalla)

First meeting is scheduled on 11/16/84.

PERFORMING ARTS SUBCOMMITTEE (Thomas Watson)

Reviewing requests for funding of performance activity.

PHYSICAL PLANNING AND UTILIZATION, COMMITTEE ON (John F. Wehmiller)

Committee has not yet met.

PROMOTIONS AND TENURE, COMMITTEE ON (Kenneth Lewis)

Committee has not yet met.

RESEARCH, COMMITTEE ON (Joanne Ryan)

Conducting review of research proposals for UD funding: proposals due by November 30. Proposals were reviewed in January.

STUDENT AND FACULTY HONORS, COMMITTEE ON (James R. Soles)

1. Reviewing "laude" honors criteria.
2. Reviewing deadlines for Degree with Distinction completion.

UNDERGRADUATE ADMISSIONS AND STANDING, COMMITTEE ON (William Ritter)

Conducting further review of Credit by Examination proposal.

UNDERGRADUATE STUDIES, COMMITTEE ON (Robert F. Brown)

1. Reviewing course approvals, changes, deletions.
2. Reviewing proposal to institute plus and minus grades for undergraduates.
3. Reviewing policy on holding examinations outside regularly scheduled class hours.

/wc

COLLEGE OF HUMAN RESOURCES

Bachelor of Science in Human Resources: Nursery-Kindergarten Education

Old requirement:	TDC or FSN electives	3
New:	TDC course	3
	FSN 200	3
Old requirement:	EDS 209	3
New:	EDS 101 Human Development & Ed. Practices	3
Old requirement:	electives	23
New:	electives	19
New:	IFS 201 Issues in Life Span Development	3
New:	HR 101 Introduction to Human Services	1
Old requirement:	IFS 465 Seminar	1
New:	IFS 465 Seminar	2
Old requirement:	IFS 445 Parent Resources	3
New:	IFS 445 Parent Resources	2
Old requirement:	Psychology elective	3
New:	Social Science elective	3
Old requirement:	English/Communication elective	3
New:	Humanities elective	3

Course letter designations:

TDC = Textiles, Design and Consumer Economics
 FSN = Food Science and Nutrition
 EDS = Educational Studies
 IFS = Individual and Family Studies
 HR = Human Resources

Major Program: BS in Accounting

At the December 7, 1983 meeting of the College of Business and Economics faculty, the following changes were made in the requirements for a BA in Accounting:

1. Because of changes in the courses offered by the Department of Business Administration, the following change is needed:

"Operations Management (BU306) to replace Introduction to Management (BU305) and Management and Organizational Behavior (BU309) to replace Organizational Personnel Behavior (BU339) for Undergraduate Accounting majors, effective with the class of 1986."

2. Because Accounting students only have one elective, 3 credit course in the "behavioral/social science group", the Accounting faculty voted to limit the choice of that course to courses in one of three areas. Other courses thought of as "behavioral/social science" courses can be taken as "free electives." The specific resolution is worded:

"Courses with the following prefixes to be accepted as the one elective "behavioral/social science" course for undergraduate Accounting majors effective with the class of 1988: Anthropology (ANT), Psychology (PSY), and Sociology (SOC). (At present the Department will accept courses with the following prefixes: Anthropology (ANT), Criminal Justice (CJ), Economics (EC), Geography (G), Political Science (PSC), Psychology (PSY), Sociology (SOC), and Individual and Family Studies (IFS)."

3. The Accounting Faculty voted to allow the following substitutions in Math courses to accept M221 and M230; M242 and M230; or M241, M242, and M243 as acceptable math sequences. The wording for this math requirement description was taken directly from that used by the Department of Business Administration. The resolution reads:

"For undergraduate Accounting majors, six credits of Mathematics, M221 and M230 are required. Allowable substitutions are M241 and M230, or M241, 242, 243. (At present the Department math requirement reads: "Six credits of Mathematics are required, and progression in course level is required. Possible combinations include M221 and M230, and M241 and M230.")"

MemorandumANNOUNCEMENT
FOR CHALLENGEAttachment 3
October 29, 1984

DATE: April 5, 1984

TO: Professor Robert Rothman, Chair
Arts and Science Academic Affairs Committee

Professor Daniel F. Callahan, Chair
Faculty Senate Undergraduate Studies Committee

FROM: Sam Gaertner, Chair, Psychology Department Undergraduate
Program Committee
and
Ralph V. Exline, Acting Chair, Department of Psychology

RE: Slight Modification of the New Psychology Department Major Requirements

The Psychology Major. Currently, one portion of the Psychology major requirements (see attachment 1) requires students to select:

Two of the following three courses:

PSY 310 (Sensation and Perception)
PSY 312 (Learning and Motivation)
PSY 314 (Bio-psychology)

In that work in human cognition has advanced rapidly within the past few years, we would like to include our PSY 340 (Human Cognition) among the above course options for the Psychology major. We have offered PSY 340 for a number of years now and wish to make it more central to the requirements for the major.

Therefore we propose that the above portion of our major requirements be changed to read:

Two of the following four courses:

PSY 310 (Sensation and Perception)
PSY 312 (Learning and Motivation)
PSY 314 (Bio-psychology)
PSY 340 (Cognition)

Please note that this proposed change does not increase the number of credits to be taken by Psychology majors, but only increases their number of options among our department's course offerings.

The Psychology Minor. In addition we propose that the requirements for the Psychology minor be changed in similar fashion.

Currently - A minor in Psychology requires 18 credits including PSY 201; 301, 303 or 325; 310, 312 or 314; and three Psychology electives with the restriction that only one elective can be special problems or research.

Proposed Psychology Minor - A minor in Psychology requires PSY 201; 301, 303 or 325; 310, 312, 314 or 340; and three Psychology electives with the restriction that only one elective can be special problems or research.

COLLEGE OF ARTS AND SCIENCE

**DEGREE: BACHELOR OF ARTS
MAJOR: PSYCHOLOGY**

SUGGESTED CURRICULUM

CREDITS*

UNIVERSITY REQUIREMENTS

E 110 Critical Reading and Writing 3¹

COLLEGE REQUIREMENTS

Skill Requirements

Writing: A writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. 3^{2,4}

Foreign Language: Completion of the intermediate-level course (112) in a given language or satisfactory performance on a placement test in the language of the student's choice. 0-12¹⁻⁴

Mathematics:

M 114 Elementary Mathematics and Statistics 3¹

or

M 115 Pre-Calculus 3

or Performing at a satisfactory level on a placement test.

Breadth Requirements (See page 51)

Group A. Understanding and appreciation of the creative arts and humanities. Twelve credits representing at least two areas. 12¹⁻⁴

Group B. The study of culture and institutions over time. Twelve credits representing at least two areas. 12¹⁻⁴

Group C. Empirically based study of human beings and their environment. Twelve credits representing at least two areas. 12¹⁻⁴

Group D. The study of natural phenomena through experiment and analysis. A minimum of thirteen credits representing at least two areas including a minimum of one course with an associated laboratory. 13¹⁻⁴

MAJOR REQUIREMENTS

Within the Department

PSY 201 General Psychology 3¹⁻⁴

PSY 309 Measurement and Statistics 3¹⁻⁴

PSY 415 History and Systems of Psychology 3¹⁻⁴

Two of the following three courses: 3¹⁻⁴

PSY 301 Personality 3¹⁻⁴

PSY 303 Introduction to Social Psychology 3

PSY 325 Child Psychology 3

Two of the following three courses: 3¹⁻⁴

PSY 310 Sensation and Perception 3

PSY 312 Learning and Motivation 3

PSY 314 Brain and Behavior 3

Three credits of content electives. At least two courses must be at or above the 400 level; however, PSY 366, 466, 468 and 365 may not be used to fulfill this requirement. 9¹⁻⁴

Three credits of any Psychology course including PSY 366, 466, 468 and 365. 3¹⁻⁴

ELECTIVES

12¹⁻⁴ *Electives*

After required courses are completed sufficient elective credits must be taken to meet the minimum credit requirement for the degree. 12¹⁻⁴

CREDITS TO TOTAL A MINIMUM OF 124

Students in the University Honors Program may major in psychology. In addition to the general requirements for a major, specific requirements for those in the Honors Program may be obtained from the department or the Honors Program office.

* Superscript figures indicate year or years in which the course is normally taken, i.e., ¹ freshman year, ² sophomore year, etc. (A course may be applied both towards the major requirement and a breadth requirement, but credits are counted only once towards the total credits for graduation.)

COLLEGE OF PHYSICAL EDUCATION, ATHLETICS AND RECREATION

Bachelor of Science in Physical Education and Health Education:
Physical Education and Health Education (PEH)

PEH Revisions:

Suggested Curriculum: Natural Science and Mathematics

Old	New
-----	Mathematics, 3 credits
6-9 credits (from specified department)	Up to 6 credits
-----	Delete: (except M251, 252)

External Requirements

Old	New
EDS 101 and EDS 209	EDS 101 or EDS 209 (actually just correction of a catalogue error)

COLLEGE: PHYSICAL EDUCATION, ATHLETICS AND RECREATION
 DEPARTMENT: PHYSICAL EDUCATION
 DEGREE: BACHELOR OF SCIENCE IN PHYSICAL EDUCATION AND HEALTH EDUCATION
 MAJOR: PHYSICAL EDUCATION AND HEALTH EDUCATION (PEH)

<u>SUGGESTED CURRICULUM</u>	<u>CREDITS</u>	<u>TYPICAL FRESHMAN COMPLETES</u>	<u>TYPICAL SOPHOMORE COMPLETES</u>	<u>TYPICAL JUNIOR COMPLETES</u>	<u>TYPICAL SENIOR COMPLETES</u>
<u>Natural Science and Mathematics</u>					
FSN 200 Food, Culture and Dietary Adequacy	3		X		
<i>xx xxx</i> Six to nine credits from at least two departments. Includes courses in <i>up to 6 additional credits may be taken from courses that follow in dept. lists</i> Anthropology (physical), Chemistry, Engineering, Entomology, Geography (physical and meteorology), Geology, Health Sciences (natural science area), Mathematics (except M-251, 252), Physics (including Astronomy), Physical Science, Plant Science, Psychology (physiological), Statistics and Computer Science. Specific courses from the College of Human Resources (Department of Food Science and Human Nutrition) and the College of Marine Studies.	6-9 7-9	X		X	
	3		X		

MAJOR REQUIREMENTS

External to the College

EDS 101 Human Development and Educational Practice	3	X			
EDS 209 Psychological Foundations of Education	3	X			
EDS 410 Educational Psychology	3				X
EDD 400 Student Teaching	9				X
One of the following three courses:				X	
EDS 147 Historical Foundations of Education	3				
EDS 258 Sociological Foundations of Education	3				
EDS 340 Philosophical Foundations of Education	3				

Within the Department

PE 130 Introduction to Health, Physical Education and Recreation	1	X			
PE 150 Movement Education for Children	3	X			
PE 214 Personal and Public Health	3	X			
PE 220 Anatomy and Physiology	3		X		
PE 250 Motor Development	3		X		
PE 300 History, Philosophy and Principles of Health, Physical Education and Recreation	3			X	
PE 305 Fundamentals of Athletic Training	3			X	
PE 314 Methods and Materials in Health Education	3			X	
PE 315 Methods and Materials in Drug Education	3		X		
PE 324 Measurement and Evaluation	3			X	

STUDENT LIFE, COMMITTEE ON

This committee shall formulate, for final determination by the faculty or its Senate, rules and regulations bearing upon the care, control, and government of students, and except where otherwise delegated, upon student extra-course activities. It shall advise the Vice President for Student Affairs on the implementation of rules and regulations enacted by the faculty or its Senate, and at least once annually shall review and evaluate with him these rules and regulations and their implementation. The committee shall generally assist and advise the Vice President for Student Affairs and be assisted and advised by him, meeting with him upon request and requesting meetings with him as needed. The committee shall also specifically advise upon student financial aid, student residence halls, student counseling and placement, and student health, and shall meet with the directors of these services at the request of the directors or at the discretion of the chairperson of the committee. It shall, further, advise upon student publications and make provision for faculty advisors to them.

This committee shall consist of two designees of the Vice President for Student Affairs; four faculty members, one of whom shall be chairperson; three undergraduate students; and one graduate student appointed by the Committee on Graduate Studies.



THE OPERATIONS RESEARCH PROGRAM

University of Delaware

A REPORT

1978 - 1983

Submitted to:

Committee on Graduate Education

and

University of Delaware Faculty Senate

September 1984

TABLE OF CONTENTS

	Page
INTRODUCTION	1
STUDENTS	3
Admission Policy	3
Graduates	7
PROGRAM	9
The Operation Research Committee	9
Seminar Series	10
Program Development	10
PROGRAM REQUIREMENTS	12
Recommendation of External Panel and Actions Taken	13

INTRODUCTION

Operations Research is a multi-disciplinary field which draws upon a number of basic disciplines in order to improve problem solving and decision making in a variety of engineering, scientific and management applications. While the basic language and method of analysis is mathematical, and any operations researcher must have training in mathematics, the nature of the problems being considered also require some knowledge of the problem area and the scientific disciplines appropriate to it. The increasing complexity of problems in many organizations today places a premium on the kind of background that an operations researcher can bring to them and it is on the basis that the Graduate Program in Operations Research was originally proposed and approved at the University of Delaware.

The program was approved by the Faculty Senate on April 10, 1978. The initial approval was provisional, pending an evaluation in the fourth year before being considered for permanent status. Since the 1979 academic year was actually the first year of operations for the program, including recruiting and considering applicants, the first "class" of graduate student in OR actually began during the 1980 academic year. Consequently, the review process began with the external panel review in the spring of 1983.

The detailed discussions and review which led to the development and approval of the initial proposal are a matter of record. The following were the essential features of the Operations Research proposal.

1. The program was intended to be a relatively small, quality graduate program with emphasis on a highly personal interaction between the candidate and the advisor.
2. Each program of study was to be oriented particularly to the student's background and professional interests.

3. Administration of the program would be the responsibility of an interdisciplinary committee drawn from all participating departments.
4. Degree requirements would reflect the interdisciplinary nature of the field of Operations Research.
5. The program would draw upon existing faculty and curriculum resources.
6. The program would require a minimum of additional resources.

The program continues to be conducted with the above features in mind.

As of the end of 84B, there were currently 12 active graduate students in the program with interests ranging from stochastic processes to the economics of development. Five of the students were seeking the Ph.D. degree; the remaining the M.S. degree. Twelve students have successfully completed the program, seven with a masters degree, five with doctorates.

During the five years, beginning with the fall of 1979 and ending with the spring of 1984, ninety applications were considered formally (this does not include the six students who transferred into the OR program from the program in mathematics in the OR program's first year). Of these, thirty-six were offered admission and twenty matriculated.

Details of the students, program, faculty and administration constitute the balance of this report. It is the feeling of the OR Committee that the program is able to draw its students from a strong applicant pool and that quality candidates with high promise are admitted. The program enjoys good support from the University administration and the participating departments. The Committee is pleased to submit this report in partial support of its recommendation that the Graduate Program in Operations Research be established as a permanent degree program at the University of Delaware.

STUDENTS

Admission Policy

The admission process for applicants is administered jointly by the student's proposed academic department and the Operations Research Committee. Applicants must indicate the department or field in which they propose to study.

Nominally, students must demonstrate a good background in mathematics, must have a combined GRE score or 1050 or better, and an undergraduate grade point average of 3.00 or better on a 4-point scale. In addition, students must be recommended for admission by their proposed department of study. Each department applies its own approved criteria while the Operations Research Committee ensures that Program and University requirements have been met. Table 1 summarizes information concerning all students offered admission to the Operations Research program.

The students enrolled during 84B are described in Table 2.

Table 1. Summary Characteristics of Admitted Student

Year of Admission*	Undergraduate College	GRE Scores		GPA	Degree Sought	Matriculated
		.V.	.Q. Total			
79/80	Towson State	516	708	1224	M.S.	Y+
	Towson State				Ph.D.	Y+
	Foreign				Ph.D.	Y
	Foreign				Ph.D.	Y
	Cornell				Ph.D.	Y
	Millersville State				M.S.	Y
	Foreign				M.S.	N
	Millersville State				M.S.	N
	Foreign				M.S.	Y+
	Foreign				Ph.D.	Y+
80/81	Foreign				Ph.D.	Y+
	Bowling Green State				M.S.	Y+
	Moravian	562	698	1260	M.S.	N
	Colgate				M.S.	Y
	U. of Oslo				Ph.D.	Y
	Pomona College				Ph.D.	Y
	Towson State				M.S.	N
	U. of Sussex				M.S.	Y
	Purdue Univ.				M.S.	Y
	St. Joseph's Drexel (MS)	553	730	1283	Ph.D.	N
81/82	Transylvania				M.S.	N
	U. of Mass.				M.S.	N
	Millersville State				M.S.	Y
	Millersville State				M.S.	Y
	U. of Algos				M.S.	Y
	U. of Madras				Ph.D.	Y
	Johannes				Ph.D.	Y
	Gutenberg				Ph.D.	Y
	Drexel				Ph.D.	Y
	Drexel				Ph.D.	Y

Year of Admission*	Student's Name	Undergraduate College	GRE Scores		GPA	Degree Sought	Matriculated
			.V.	.Q. Total			
82/83 cont.		Delhi Georgia Tech. U. of Colombo	478	657	3.35	Ph.D.	Y
			Averages:			M.S.	Y(1)
						Ph.D.	Y
83/84		Reg. Eng. Coll. Reg. Eng. Coll. U. of Athens U. of Delaware U. of Calcutta U.Coll. of Sci. National Tech. Univ. Messiah Coll. Indian Inst. of Tech. Elizabethtown Lehigh (MS) U. of N.C. at Wilmington	533	735	3.48	M.S.	Y
						M.S.	N
						M.S.	N
						Ph.D.	Y
						M.S.	N
						Ph.D.	Y
						Ph.D.	N
						M.S.	N
						M.S.	N
						Ph.D.	Y
			Ph.D.	Y			

- (1) Withdrew after first year
+ Transferred from existing graduate program in Mathematics.
* For matriculation in the following academic year.

Table 2. Students Currently Enrolled**

Current Students

Degree	Field	GPA Average	Support
MS	Agr Ec		TA
MS	Math	3.56	
MS	Math		TA
PhD	Business		TA
PhD	Math		Off Campus
PhD	Marine		*
PhD	Math		Off Campus
MS	Business		TA
PhD	Math		TA
MS	Math		TA
MS	Math		TA
MS	Math		TA

* Recipient of a University Fellowship for 1984/85

**As of May 31, 1984

Graduates

Felipe Araujo: MS, 1981

"Curve Fitting and Production Smoothing with Linear Programming"

- Dr. Robert Stark

Professor of Operations Research and Mechanical Engineering,
Universidad de Zulia, Venezuela

Miriam Pagano: MS, 1981

"Generating Random Variates from a Distribution of Phase Type"

- Dr. Marcel Neuts

Engineer, IBM Federal Systems Division

David Lucantoni: PhD, 1982

"An Algorithmic Analysis of a Computer-Communications Model"

- Dr. Marcel Neuts

→*Recipient of 1982 Allan P. Colburn Dissertation Award*

Staff Researcher, Bell Labs

Antionette Lubich: MS, 1982

"Organizations of Fresh Market Vegetable Farms of Delmarva Peninsula
Under Risk" - Dr. Joachim Elterich

Operations Research Analyst, Department of Navy

Peter Cooper: MS, 1982

"The Effect of Update Interval Upon MRP System Nervousness"

- Dr. Avijit Banerjee

Systems Analyst, Computer Software Designs

Srinivasaraghavan Chakravarthy: PhD, 1983

"A Stochastic Model for Two Servers Sharing a Common Tool Magazine
and Its Analysis" - Dr. Marcel Neuts

Assistant Professor, General Motors Institute

Sehavadhani Kumar: PhD, 1983

"A Simulation Study of a Multi-Nodal Communication Network with
Contention" - Dr. Marcel Neuts

Assistant Professor, University of North Carolina at Charlotte

William S. Lovejoy: PhD, 1984

"Policy Bounds for Markov Decision Processes with Applications to
Fisheries Management" - Dr. Lee Anderson

→*Recipient of 1984 Allan P. Colburn Dissertation Award*

Assistant Professor, Georgia Institute of Technology

Victoria Aderogba: MS, 1984

"Demand Analysis of Selected Dairy Products in the Northeast of the
USA" - Dr. Joachim Elterich

Lecturer in Statistics and Economics, Nigeria

Marcia L. Stoner: MS, 1984

"Discriminant Analysis for the Selection of Treatments for Accounts
Receivable" - Dr. John Schuenemeyer

Systems Analyst, General Electric Company

Graduates cont.

Sjur D. Flam: PhD, 1984
"Resource Management Under Uncertainty" - Dr. Adi Ben-Israel
Professor, Chr. Michelsens Institute, Bergen, Norway

Eileen F. Beahan: MS, 1984
"Interactive Multiple Objective Programming" - Dr. Adi Ben-Israel
Inventory Analyst, Burroughs Corporation

PROGRAM

The Operation Research Committee

Responsibility for the administration of the program is vested in an executive committee (the OR committee). Each department which participates in the program is represented on the committee by faculty chosen by the department. The current committee membership (85A) is given in Table 3 below.

Table 3. Current Committee Membership

Administration

1. OR Committee

Michael F. Pohlen, Business Administration, Chairman
Richard J. Agnello, Economics
Lee G. Anderson, Marine Studies
Adi Ben-Israel, Mathematical Sciences
Pamela G. Brown, Business Administration
Joachim G. Elterich, Agriculture and Food Economics
Shinya Kikuchi, Civil Engineering
Kenneth A. Lewis, Economics
Marcel F. Neuts, Mathematical Sciences
Robert M. Stark, Mathematical Sciences

2. Budget for 1984/85 is \$14,400 plus a University Fellowship. This supports a one-fourth reduction in load for the OR Committee chairman, a one-half line for the secretary, the OR Seminar series and general expenses. In prior years, the budget had been at \$10,000.

The Operations Research committee is responsible for setting standards for selection and retention of students, establishing and supervising the academic programs of study and setting degree requirements in conjunction with the participating departments.

The work of each student in the Operations Research program is supervised by a committee whose members are approved by the Operations Research committee. This supervising committee is chaired by the student's thesis adviser and includes faculty from the student's department and other disciplines relevant to the student's research.

The Chairperson of the Operations Research committee is appointed to a two-year term, which may be extended, by the University Coordinator for Graduate Studies on the recommendation of the Operations Research committee. The Operations Research Chairperson reports to the University Coordinator for Graduate Studies.

Seminar Series

The Operations Research seminar series is considered to be an integral part of the Operations Research program. Since the small size of the program precludes the offering of a wide variety of applications courses, the series is designed to fill the purpose. It is the forum by which Operations Research students and faculty hear about and discuss applications, issues and topics of current interest. Interaction is enhanced by the informal nature of the seminars and by a luncheon which precedes each seminar.

Program Development

In fulfilling its responsibility for the development of the program, the Operations Research committee has considered a number of issues concerning the

program and its future.

At the present time, there is no plan to expand the size of the program beyond its current general level. Some modest effort at a slightly more visible recruiting program is being considered. Current recruiting is done mainly on an individual basis by interested faculty and the proposed activity would go only slightly beyond that.

A second issue is a necessary consequence of the multidisciplinary nature of the program and its small size. These result in little joint research among students or faculty, beyond that which might occur as a result of personal interests. The committee is considering the development of what has been termed a "crystallizing" research project, one that would draw upon the several disciplines and interests represented among the Operations Research faculty and students. Such a project could provide funding for several students and be the focus of considerable faculty and student interaction.

In conjunction with the above, the committee is considering how first and second year Operations Research students might become better acquainted with the many research topics and problems available for study in Operations Research beyond the awareness created by the current seminar series.

PROGRAM REQUIREMENTS

Students are expected to fulfill the specific requirements for their degree established by the respective participating departments and set forth by their committee. All student must meet the Operations Research program requirements which are as follows:

1. All University requirements as set forth in the Graduate Catalogue.
2. More M.S. students, about 40% of the program will be course work in the mathematical sciences appropriate to the student's field of study and another 40% will be in course work in the student's subject area. The remaining 20% will be a required thesis.
3. Masters students will be required to defend their thesis in an oral examination open to the public.
4. Work towards the doctoral degree in Operations Research will be divided approximately equally among the student's subject area, the supporting mathematical sciences and the dissertation.
5. In addition to the qualifying examination and the final thesis defense, doctoral students will be required to pass a preliminary examination at the end of their first year of study.

Specific requirements set forth by the Department of Mathematical Sciences, Business Administration and Agricultural Economics are available.

Recommendation of External Panel and Actions Taken

1. Administration

- a. Released time for Chairman - see table 3
- b. Continuity for students - regular office hours held by Chairman in OR office in Rees Hall and student record file being established there
- c. Composition of OR Committee limited to two faculty from each participating department - see Committee roster; creation of informal "OR Faculty" which will meet periodically (e.g., once a semester) to provide input to OR Committee

2. Curriculum and students

- a. Increase representation of departments other than Math Sciences among students - TA-ships sought from other departments plus a modest recruitment program has been initiated; currently one-third of active students have non-mathematics fields
- b. Improve course continuity in OR topics - proposal being developed for Committee consideration for an OR course sequence of two or three courses; funding requested (with indication of positive consideration) for visiting faculty to teach these courses; visitors to be external faculty on sabbatical or Delaware faculty on release from their departments; anticipated implementation for 1985/86

COLLEGE OF ENGINEERING

a. Mechanical and Aerospace Engineering Major Requirements
(Revisions apply to all concentration areas)

<u>Old Requirements</u>		<u>New Requirements</u>	
EG 125 (MAE)	2 credits	EG 125 (MAE)	3 credits
MEC 213	4	MAE 213 Principles of Mechanics I (new course)	4
MEC 214	4	MAE 214 Principles of Mechanics II (new course)	4
MAE 307	4	MAE 307	3
Technical Elective		MAE 308	3
MAE 348	4	(MAE 347 Mechanical Design II (new course)	3
Technical Elective		(MAE 348 Mechanical Design I	3
Technical Elective		MAE 427 System Dynamics I (new course)	3
Technical Elective		MAE 428 System Dynamics II (new course)	3
MAE 447	2	MAE 447	3
MAE 448	2	MAE 448	3

(Summary: Increase of total credits required for graduation by 4, to 132; specification of 9 credits formerly Technical Electives.)

b. Electrical Engineering Major Requirements
(changes apply to all concentration areas)

<u>Old Requirements</u>		<u>New Requirements</u>	
EG 125 (EE)	3 credits	CIS 105	3 credits
- - -		EE 105 Introduction to Electrical Engineering	1 (pass/fail)