WESTERN KENTUCKY UNIVERSITY

Ogden College of Science, Technology and Health

REPORT TO THE UNIVERSITY REGENTS, October 1981

WESTERN KENTUCKY UNIVERSITY

Ogden College of Science, Technology and Health

Part 1. Overview

1. Overview of Ogden College

One of the four academic colleges making up the University, Ogden College of Science, Technology and Health is composed of ten departments (page 4), approximately 190 faculty members, and a student body generating over 100,000 SCH (student credit-hours) per year.

The principal administrative officer of the College is the Dean, who reports to the Vice President for Academic Affairs. The Dean is assisted by the Associate Dean and the Assistant Dean. The division of administrative responsibility is shown on the Areas of Responsibility chart (page 5), and is described in greater detail in the job descriptions (pages 6-9).

The ten Department Heads are responsible for the administration of their respective programs. Deans and Department Heads meet in scheduled meetings each Wednesday, and additionally when occasion demands. The other major agencies of academic administration within Ogden College are the College Curriculum Committee (department heads, one elected faculty member from each department, and student representatives) and the College Graduate Committee (one elected member of the graduate faculty from each department having an active graduate program). These committees are the primary agencies of internal quality control of the academic programs. All proposals for new programs, new courses, or changes in programs or courses must be approved by the appropriate College committee before being submitted to the University's Academic Council or Graduate Council for consideration.

The broad range of academic programs within Ogden College can conveniently be grouped in the areas of Basic Sciences (Biology, Chemistry, Geography, Geology, Mathematics, and Physics and Astronomy), Applied Sciences (Agriculture, Computer Science, Engineering Technology, Industrial Education

and Technology), and Health and Clinical Programs (Dental Hygiene, Medical Record Technology, Nursing, and Health and Safety). At the lower division level these programs generate approximately 40,000 credit-hours per semester, over half of these in the Basic Sciences. In the past five years overall growth has been moderate, but growth in the Applied Sciences has been strong, averaging 4% per year (table, page 10).

Upper division courses in the College represent only about one-third the credit-hour production of the lower division. This is a common phenomenon, due mainly to the large numbers of non-science majors who take several lower-division science and mathematics courses. This also reflects the 'pyramidal' nature of university science education, in which, for example, a Biology major will take a number of courses in Mathematics, Physics and Chemistry -- mostly lower-division courses -- to provide the solid basis for advanced studies in the life sciences. The third factor is attrition of students who find themselves unable to master a particular area of science and will often turn to another field.

The strength of upper division enrollments is a good indicator of the disciplinary strengths of a science college. During the past five years, all three areas of Ogden College have shown very strong growth in upper division enrollments (table, page 11): upper division credit hours in the basic sciences are up by 70%, those in the health and clinical programs are up by 72%, and those in the applied sciences have more than doubled. This reflects both a general across-the-board building of baccalaureate programs and also the development of strong new programs in Computer Science and Nursing.

The College's graduate programs in the basic sciences and in Health and Safety have shared in the general nationwide decline in graduate studies,

averaging about 20% over the past five years. Exceptions to this trend are Agriculture and Chemistry (table, page 12). The new M.S. degree program in Computer Science has attracted considerable interest and appears likely to become an important part of the College's graduate programs.

College enrollment data for the past five years are summarized on page 13. All three areas of College activities show significant growth in student enrollments during this period, led by the Applied Sciences.

The following sections of this report provide detailed information regarding individual departments and programs.

WESTERN KENTUCKY UNIVERSITY
OGDEN COLLEGE OF SCIENCE, TECHNOLOGY AND HEALTH

DEAN William G. Lloyd
ACTING ASSOCIATE DEAN Gary E. Dillard
ASSISTANT DEAN Lynn E. Greeley

DEPT. OF AGRICULTURE
L. D. Brown, Head

DEPT. OF ALLIED HEALTH
A. F. Gôdby, Head

DEPT. OF BIOLOGY
Jeff H. Jenkins, Head

DEPT. OF CHEMISTRY
Laurence J. Boucher, Head

DEPT. OF GEOGRAPHY AND GEOLOGY
Wayne L. Hoffman, Head

DEPT. OF HEALTH AND SAFETY
J. David Dunn, Head

DEPT. OF INDUSTRIAL AND ENGINEERING TECHNOLOGY
Boyce C. Tate, Head

DEPT. OF MATHEMATICS AND COMPUTER SCIENCE
Robert C. Bueker, Head

DEPT. OF NURSING
Mary E. Hazzard, Head

DEPT. OF PHYSICS AND ASTRONOMY
N. Frank Six, Head

Overall Areas of Responsibility

DEAN	ASSOCIATE DEAN	ASSISTANT DEAN
Faculty recruitment		
Faculty evaluation		
Rank and Promotion		
Program development (UG)	Assistantship budget acctg	Space planning and utilization
Curriculum Committee	Program development (GR)	OCSTH Office management
Instructional Quality (UG)	Graduate Committee	OCSTH Staff management
Teaching Loads	Instructional Quality (GR) Faculty Work Load Degree Program Review	
Capital allocation	Student recruitment	Purchasing
Incentive share return	Student relations	Physical Plant liasion
	Research activities	Institutional AHES Coordinator
	Extramural funding	Grant Management
	Public School Relations	Business/Industry Relations

Of the three-person OCSTH management team, it will often be the case that one member is out of the office or out of town, and it will occasionally happen that two of the three are out of the office or out of town. At least one of the three will always be in the office during University working hours. Each should maintain sufficient familiarity with the activities of the others that he/she can temporarily assume the responsibility of the absent manager so that College business can proceed without delay. The Associate Dean and the Assistant Dean are authorized to sign on behalf of the Dean in his absence.

ASSOCIATE DEAN, OCSTH

The Associate Dean shall serve as the alternate for the Dean, and shall act on behalf of the Dean and on behalf of the College in the absence of the Dean. The Associate Dean shall represent the College at meetings of the Council of Deans, the Council of Academic Deans, the Administrative Council, and other regular or ad hoc meetings at which College administrative representation is desired and when the Dean is unable to attend.

The Associate Dean shall have, in addition, primary responsibility for the following areas of OCSTH activities:

1. Graduate Programs. The Associate Dean shall have primary planning and policy development responsibility with regard to the development/recision of graduate programs. The Associate Dean shall chair meetings of the OCSTH Graduate Committee. The Associate Dean shall also be responsible for the instructional quality control of graduate courses and programs offered by OCSTH, and shall serve as the College Office's liaison with the several departmental graduate committees.

2. Research and Extramural Funding. The Associate Dean shall have primary responsibility for encouragement and administrative support of faculty efforts to obtain extramural funding. The Associate Dean will be the College Office's liaison with the Office of Grants and Contracts with regard to agency and other sources of research funding. The Associate Dean will develop policies with regard to the use of special assignment time to assist those faculty members with serious research interests in becoming more active in this area.

Associate Dean, OCSTH

3. Student Recruitment and School Relations. The Associate Dean shall have primary responsibility for working with a college-wide committee to develop and implement an effective recruitment program. Recognizing that the principal obstacle to high school recruitment in this part of the country is not superior recruitment by other colleges but rather a lack of awareness of the advantages of college educations, the Associate Dean will undertake to develop and implement an improved program of relations with secondary school teachers of mathematics and the sciences.

4. Student Relations. The Associate Dean will manage correspondence, inquiries and complaints from students or prospective students of the College. When necessary and in accordance with University regulations, the Associate Dean will designate an ad hoc Chairperson for the OCSTH Academic Complaint Committee, and shall ensure that complaints properly brought to the College office are accorded a hearing by this Committee. (The Associate Dean may at his discretion sit in on such hearings, but should play no active part. This is in accord with OCSTH policy of maintaining an appropriate separation between administrative and quasi-judicial functions.)

ASSISTANT DEAN, OCSTH

The Assistant Dean shall be a part of the College management team, and shall act on behalf of the College in the absence of the Dean and the Associate Dean. The Assistant Dean will from time to time be asked to represent the College at regular or special University administrative meetings.

In addition, the Assistant Dean shall have primary responsibility for the following areas of OCSTH activities:

1. Management of Office and Staff. The Assistant Dean shall have primary responsibility for management and oversight of the OCSTH office staff and equipment, and of the various staff operations maintained by the College (machine shop, electronics shop, etc.). The Assistant Dean shall establish and implement procedures to permit assessment of the quality and quantity of tasks performed by OCSTH staff personnel. Looking forward to the time when we may be asked to operate under closer accounting control, the Assistant Dean is also charged with development of a service recharge plan such as that in current use at the University of Kentucky.

2. Space Allocation and Utilization. The Assistant Dean will be primarily involved in developing and implementing policy with regard to space allocation and utilization. Requests for space use from those outside the College will be handled by the Assistant Dean. (Where space allocation has evident and significant impact upon academic programs, the Assistant Dean will of course confer with his associates.)

3. Monitoring of Accounts. The Assistant Dean is the principal financial officer of the College. He/she will assume principal responsibility for oversight

of OCSTH office accounts, for oversight and monitoring of the College's Graduate Assistantship funds, and for initiating and following through all major capital purchases for the College. When an extramural grant has been obtained, the Assistant Dean will meet with the faculty member who is Principal Investigator, ascertain that the P.I. understands what should be done in order to use the funds to implement his/her project, and provide guidance and assistance where appropriate.

4. Public Service. The Assistant Dean shall have primary responsibility for the College's Public Service activities and for our relations with business and industry in the area. He shall take initiative where appropriate in facilitating the establishment of training workshops for industrial and public employees. He shall serve as the College's liaison with the University's Office of Cooperative Education.

5. Liaison to Nonacademic Operations. The Assistant Dean shall serve as the College's advisor and liaison for projects/tasks which entail working with the University's Physical Plant Department, for research P.I.'s who have special purchasing needs in connection with their projects, and in handling other matters involving those elements of the University external to the Office of Academic Affairs.

WESTERN KENTUCKY UNIVERSITY

OGDEN COLLEGE OF SCIENCE, TECHNOLOGY AND HEALTH

PRODUCTION OF LOWER DIVISION (FRESHMAN AND SOPHOMORE) CREDIT-HOURS, 1976-1981

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981*	Percent Change, 1976-1981
BASIC SCIENCES:							
Biology	5334	4953	3559	3551	4009	4315	-19.1
Chemistry	3693	3441	3584	3126	3143	3300	-10.6
Geography/Geology	3877	3585	3079	3140	3630	3880	-0.2
Mathematics	9381**	9138	9408	9486	10732	12025	+32***
Physics/Astronomy	4879	4550	4289	4349	4235	4282	-12.2
Totals:	27164**	25667	23919	23652	25749	27802	+8.3***
APPLIED SCIENCES:							
Agriculture	2238	2672	2076	2286	2398	2804	+25
Computer Science	--	720	888	1128	1622	1835	+155***
Engineering Tech.	1147	1135	904	913	1038	854	-26
Ind. Ed. & Tech.	2342	2722	2647	1988	2069	1454	-38
Totals:	5727	7249	6515	6315	7127	6947	+21
HEALTH AND CLINICAL PROGRAMS:							
Dental Hygiene	288	278	248	248	268	298	+3.5
Med Records Tech	--	86	85	127	308	242	+180***
Nursing	1331	1483	1501	1579	1675	1740	+31
Health/Safety	4503	4550	4101	4088	4090	3477	-23
Totals:	6122	6397	5935	6042	6341	5757	-6.0
OCSTH TOTALS:	39013	39313	36369	36009	39217	40506	+3.8

*Unofficial, preliminary data.

**Includes Computer Science data.

***Percent change, 1977-1981.

WESTERN KENTUCKY UNIVERSITY

OGDEN COLLEGE OF SCIENCE, TECHNOLOGY AND HEALTH

PRODUCTION OF UPPER DIVISION (JUNIOR AND SENIOR) CREDIT-HOURS, 1976-1981

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981*	Percent Change, 1976-1981
BASIC SCIENCES:							
Biology	1106	1378	2125	1949	2057	1915	+73
Chemistry	643	663	683	842	1020	961	+50
Geography/Geology	703	691	677	1169	1414	1442	+105
Mathematics	504	347	321	578	541	732	+111
Physics/Astronomy	95	46	105	99	173	144	+52
Totals:	3051	3125	3911	4637	5205	5194	+70
APPLIED SCIENCES:							
Agriculture	1238	1239	1763	1650	1846	2223	+80
Computer Science	--	270	285	387	525	612	+127**
Engineering Tech.	1057	1218	1456	1510	1413	1617	+53
Ind. Ed. & Tech.	754	1028	1309	2519	2343	1683	+123
Totals:	3049	3755	4813	6066	6127	6135	+101
HEALTH AND CLINICAL PROGRAMS:							
Med Records Tech	--	--	--	--	38	48	--
Nursing	75	216	197	309	418	596	+700
Health/Safety	1183	1546	1233	1464	1396	1517	+28
Totals:	1258	1762	1430	1773	1852	2161	+72
OCSTH TOTALS:	7358	8642	10154	12476	13184	13490	+83

*Unofficial, preliminary data.

**1977-1981

WESTERN KENTUCKY UNIVERSITY

OGDEN COLLEGE OF SCIENCE, TECHNOLOGY AND HEALTH

PRODUCTION OF GRADUATE STUDENT CREDIT-HOURS, 1976-1981

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981*	Percent Change, 1976-1981
BASIC SCIENCES:							
Biology	284	329	332	311	252	167	-41
Chemistry	97	103	89	83	123	152	+57
Geography/Geology	184	247	127	184	197	213	+16
Mathematics	80	83	49	55	44	51	-39
Physics/Astronomy**	82	51	54	38	34	9	-89
Totals:	727	813	651	671	650	592	-18.6
APPLIED SCIENCES:							
Agriculture	130	117	217	174	216	166	+28
Computer Science	...	9	9	6	6	45	--
Engineering Tech.***	--	46	7	19	18	16	--
Ind. Ed. & Tech.	93	72	99	90	117	60	-35
Totals:	223	244	332	298	347	287	+29
HEALTH AND CLINICAL PROGRAMS:							
Nursing***	...	...	...	...	...	12	...
Health/Safety	333	229	224	396	316	246	-26
Totals:	333	229	224	396	316	258	-23
OCSTH TOTALS:	1283	1286	1207	1365	1313	1137	-11.4

*Unofficial, preliminary data.

**Department graduate committee recommends suspension

***No graduate program; courses offered as service to other programs.

WESTERN KENTUCKY UNIVERSITY

OGDEN COLLEGE OF SCIENCE, TECHNOLOGY AND HEALTH

OVERALL STUDENT CREDIT-HOUR PRODUCTION, 1976-1981

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981*	Percent Change, 1976-1981
BASIC SCIENCES							
Lower Division	27164**	25667	23919	23652	25749	27802	+8.3***
Upper Division	3051	3125	3911	4637	5205	5194	+70
Graduate	727	813	651	671	650	592	-18.6
Totals:	30942**	29605	28481	28960	31604	33588	+13.5***
APPLIED SCIENCES							
Lower Division	5727	7249	6515	6315	7127	6947	+21
Upper Division	3049	3755	4813	6066	6127	6335	+108
Graduate	223	244	332	298	347	287	+29
Totals:	8999	11248	11660	12679	13601	13569	+51
HEALTH AND CLINICAL PROGRAMS							
Lower Division	6122	6397	5935	6042	6341	5757	-6.0
Upper Division	1258	1762	1430	1773	1852	2161	+72
Graduate	333	229	224	396	316	258	-23
Totals:	7713	8388	7589	8211	8509	8176	+6.0
OCSTH TOTALS:	47654	49241	48912	49850	53714	55333	+16

*Unofficial, preliminary data.

**Includes Computer Science data.

***Percent change, 1977-1981.

WESTERN KENTUCKY UNIVERSITY

Ogden College of Science, Technology and Health

Part 2. The Basic Sciences

2. The Basic Sciences

The Basic Sciences (Biology, Chemistry, Geography, Geology, Mathematics, and Physics and Astronomy) represent the largest single grouping within the College. Between fall 1976 and fall 1981 enrollments in these programs have increased by 13.5% while faculty instructional effort (FTEF = full time equivalent faculty) has remained essentially constant (down by 0.5%).

The detailed statistics of faculties, degree programs offered, and student enrollments at various levels for the past five years are presented alphabetically by department in a series of tables (pages 17-26).

The quality of instructional programs is difficult to capture in credit hour tabulations. The paragraphs which follow present several aspects of the quality and integrity of the programs in the basic sciences.

One indicator of quality is the acceptance of B.S. science graduates into postgraduate and professional schools. In the last five years the graduates from four of our programs (biology, chemistry, mathematics and physics) have been admitted to postgraduate schools in record numbers: 64% of our recent graduates from these programs have gone on into graduate or professional studies. This is an extraordinarily high figure for a public university.

An indicator of graduate program quality is acceptance of a M.S. graduate into a doctoral program with advanced graduate status. Among recent M.S. graduates in Chemistry, Geography, Biology, Physics, Geography and Mathematics, between 35% and 45% have undertaken doctoral studies.

Another indicator of program quality is the stature of the institutions accepting our graduates. Among the major universities accepting our B.S. and M.S. science graduates into doctoral and professional studies

are Auburn, Cornell, Georgetown (DC), Georgia, Kentucky, Louisville, Massachusetts, Michigan State, Missouri, Nebraska, North Carolina State, Ohio State, Oklahoma State, Pennsylvania State, SUNY - Binghamton, Tennessee, Texas, Vanderbilt and Virginia Tech (VPI).

Another indicator of quality is the acceptance rate of our student candidates into the professional schools of medicine, dentistry and pharmacy. For the decade just ended the acceptance rate for Western students into medical schools has been 58%, one of the highest of any public university. Over the same period the acceptance rate of Western students into dental schools has averaged 67%, and for pharmacy schools 80%. This is, we believe, the best admissions record of any of the eight state universities. In 1979 and 1980 the rates have been still higher, 20 for 26 applicants (77%) for dentistry, and 36 for 39 applicants (92%) for pharmacy.

It is no coincidence that the basic science departments have established records of research and scholarly activities, as evidenced by the number of publications in nationally recognized journals. In every recent year more papers are listed in the Science Citation Index from Western than from any other non-doctoral institution in Kentucky.

Excellence in research can bring other dividends. One science department in the last three months has brought three research grants totalling over $300,000 in outside money, mostly from the U.S. Department of Energy. These grants include funds which will support four graduate students on research assistantships, as well as underwriting the purchase of more than $60,000 in new instrumentation and equipment which could not otherwise have been obtained (see Appendix 6.1).

Our Geography program is the oldest, largest and strongest in the State. The Federal government selected Western as the institution to house Kentucky's State Climatologist. In July 1981 the International Congress of

Speleology held its first meeting ever in North America, with representatives from more than two dozen foreign countries. The host organization for this major event was Western's Department of Geography and Geology.

One of our faculty is editor of the national Biophysics Newsletter. Another is just returned from a year on an Alexander von Humboldt (West German government) Fellowship, the only U.S. Fellow from other than a major research university. Two others in the College have recently returned from Fulbright Lectureships abroad. The faculty of this College includes dozens who are regularly published in major referee'd scientific journals. For at least one major Federal agency, Western is the principal academic research contractor in the State. In at least half a dozen fields we have experts of significant national reputation. Viewed in conjunction with the high teaching loads and the growing student/faculty ratio in the sciences, the consistently high quality of the basic science programs is noteworthy.

BIOLOGY

Dr. J. H. Jenkins, Head

Faculty: 21

Terminal degrees: 19

13 Professors

3 Associate Professors

4 Assistant Professors

1 Instructor

Programs:		% Faculty Effort (1980-81)
Minor	Biophysics	10%
B.S.	Biology	85%
B.S.	Psychobiology	
M.S.	Biology	5%
M.A.Ed.	Biology	
Ph.D.	Biology (cooperative with U of L)	(0%)

DEPARTMENT OF BIOLOGY

Student Enrollment and Faculty Effort

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981*	Percent Change, 1976-1981
Lower Division SCH	3334	4953	3559	3551	4009	4315	-19.1
Upper Division SCH	1106	1378	2125	1949	2057	1915	+73.1
Graduate SCH	284	329	332	311	252	167	-41.2
TOTAL SCH	6724	6660	6016	5811	6318	6397	-4.9
FTE Faculty	20.8	19.9	17.5	18.4	18.1	20.3	-2.4
Student/Faculty Ratio	20.5	21.3	21.8	20.1	22.1	19.9	-2.9

SCH = student credit-hour FTE = full time equivalent

* Unofficial, preliminary data

CHEMISTRY

Dr. L. J. Boucher, Head

Faculty: 16

Terminal degrees: 14

8 Professors

8 Associate Professors

Programs:		% Faculty Effort (1980-81)
A.S.	Coal Technology	(0%)
B.S.	Chemistry	91%
M.S.	Chemistry	
M.A.Ed.	Chemistry	9%
Ph.D.	Chemistry (cooperative with U of L)	(0%)

DEPARTMEMT OF CHEMISTRY

Student Enrollment and Faculty Effort

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981*	Percent Change, 1976-1981
Lower Division SCH	3693	3441	3584	3126	3143	3300	-10.6
Upper Division SCH	643	663	683	842	1020	961	+49.5
Graduate SCH	97	103	89	83	123	152	+56.7
TOTAL SCH	4433	4207	4356	4051	4286	4413	- 0.5
FTE Faculty	13.4	12.9	13.3	14.2	13.5	14.4	+ 7.5
Student/Faculty Ratio	20.8	20.5	20.6	18.0	20.0	19.4	- 6.7

SCH = student credit-hour FTE = full time equivalent

*Unofficial, preliminary data

GEOGRAPHY AND GEOLOGY

Dr. Wayne L. Hoffman, Head

Faculty: 16

Terminal degrees: 13

10 Professors

2 Associate Professors

3 Assistant Professors

1 Instructor

Programs:

		% Faculty Effort (1980-81)
A.S.	Cartographic and Mapping Technol.	
A.S.	Meteorological Technol.	2.2%
B.S.	Geography	
B.S.	Earth Science	
B.S.	Geology	
B.S.	Geophysics*	
B.S.	Regional Planning	89%
B.S.	Hydrology	
M.S.	Geography	
M.A.Ed.	Geography	
M.P.S.	City and Regional Planning	9%

*Recommended for withdrawal as major.

DEPARTMENT OF GEOGRAPHY AND GEOLOGY

Student Enrollment and Faculty Effort

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981*	Percent Change, 1976-1981
Lower Division SCH	3877	3585	3079	3140	3630	3880	-0.2
Upper Division SCH	703	691	677	1169	1414	1442	+105.1
Graduate SCH	184	247	127	184	197	213	+15.8
TOTAL SCH	4764	4523	3883	4493	5241	5535	+16.2
FTE Faculty	14.3	14.9	13.1	14.8	15.2	15.8	+10.5
Student/Faculty Ratio	21.2	19.3	18.7	19.3	21.9	22.2	+4.7

SCH = student credit-hour FTE = full time equivalent

*Unofficial, preliminary data.

MATHEMATICS AND COMPUTER SCIENCE

Dr. Robert C. Bueker, Head

Faculty: 34

Terminal degrees: 17

11 Professors

6 Associate Professors

10 Assistant Professors

7 Instructors

Programs:		% Faculty Effort (1980-81)
A.B.	Mathematics	
B.S.	Computer Science	94%
M.S.	Mathematics	
M.A.Ed.	Mathematics	
M.S.	Computer Science	6%

DEPARTMENT OF MATHEMATICS

Student Enrollment and Faculty Effort

	F 1976*	F 1977	F 1978	F 1979	F 1980	F 1981**	Percent Change 1977-1981
Lower Division SCH	9381	9138	9408	9486	10732	12025	+ 31.6
Upper Division SCH	504	347	321	578	541	732	+110.9
Graduate SCH	80	83	49	55	44	51	- 38.6
TOTAL SCH	9965	9568	9778	10119	11317	12808	+ 33.9
FTE Faculty	29.2	25.5	25.0	26.5	26.7	29.8	+ 16.9
Student/Faculty Ratio	21.4	23.5	24.5	23.9	26.6	26.9	+ 14.5

SCH = student credit-hour FTE = full time equivalent

* Includes Computer Science data

** Unofficial, preliminary data

PHYSICS AND ASTRONOMY

Dr. N. Frank Six, Head

Faculty: 16

Terminal degrees: 13

5 Professors

9 Associate Professors

2 Assistant Professors

Programs:

		% Faculty Effort (1980-81)
B.S.	Engineering Physics	
B.S.	Physics	
B.S.	Physics and Astronomy	
B.S.	General Science	81%
B.S.	Mathematics and Physical Science	
M.S.	Physics*	
M.S.	Engineering Physics*	
M.A.Ed.	Physics*	19%

*Recommended for suspension by department graduate faculty.

DEPARTMENT OF PHYSICS AND ASTRONOMY

Student Enrollment and Faculty Effort

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981*	Percent Change, 1976-1981
Lower Division SCH	4879	4550	4289	4349	4235	4282	-12.2
Upper Division SCH	95	46	105	99	173	144	+51.6
Graduate SCH**	82	51	54	38	34	9	-89.0
TOTAL SCH	5056	4647	4448	4486	4442	4435	-12.3
FTE Faculty	16.0	15.1	15.2	14.5	13.1	12.9	-19.2
Student/Faculty Ratio	19.9	19.3	18.4	19.4	21.2	21.5	+8.0

SCH = student credit-hour FTE = full time equivalent

*Unofficial, preliminary data.

**Recommended for suspension by department graduate faculty.

WESTERN KENTUCKY UNIVERSITY

Ogden College of Science, Technology and Health

Part 3. Applied Science and Technology

3. Applied Science and Technology

This area, including programs in Agriculture, Computer Science, Engineering Technology, and Industrial Education and Technology, is undergoing the most rapid growth in the College. Agriculture over the past five years has increased its student credit hour production by 44%. Engineering Technology is up 13%. Industrial Education and Technology enrollments have fluctuated with the changing employment market; 1981 constitutes a 'dip' and its overall numbers are little changed. Computer Science shows an overall growth rate in the last four years of 150%.

The statistics on the following pages (pp 31, 33, 36) show in detail the striking growth rates in the applied sciences. During periods of rapid growth we have special obligations to monitor program quality. The following paragraphs relate to the levels of excellence maintained in these programs.

With approximately 475 majors and current class enrollments above 5,000 SCH, the 15-member Agriculture department is heavily involved in teaching. Beyond the elementary courses, however, much of the teaching is accomplished by 'learning to do'. The University Farm raises and harvests various crops, and breeds cattle and swine. The Farm costs approximately $250,000 per year to operate; but it earns back all of this by marketing its produce, providing in effect a cost-free 'laboratory' for its students. Last year the University Farm also provided more than $33,000 in student wages, helping many an Ag student to work his/her way through college. A recent survey shows that over 90% of Agriculture graduates remain in an agricultural profession; over 92% remain in Kentucky.

Western's dairy husbandry group is one of the best in the country, and Western's dairy herd has been nationally ranked for years. In 48 of the 50 states the top ranked dairy herd is private or is commercially owned. Kentucky is one of only two states in which the top-ranked herd is owned by a University: Western. This past summer a major out-of-state corporation sought a nationally prominent dairy operation to arrange feeding tests. They came to Western, and the project is currently providing over $100,000 per year of out-of-state money for the department and its students.

Another measure of excellence of the Agriculture program is the admissions rate of its graduates into schools of veterinary medicine -- now the most intensely competitive of all professional schools. A student graduating Western's Ag program not only has the best chance of admission in the State; his/her chances are nearly half again as good as if that student were graduating from the second best program in the State.

Three Kentucky universities offer programs in engineering technology. Western's B.S. programs in civil and in electrical E.T. are among two (each) which are nationally accredited by the Engineers Council for Professional Development. Our programs in mechanical and in environmental E.T. are the only programs in Kentucky with ECPD accreditation. Graduates are in high demand and at excellent salaries. Furthermore, notwithstanding well-defined distinctions between engineering programs and engineering technology programs, many of Western's E.T. baccalaureates have earned postgraduate degrees in engineering from major universities, among them Kentucky, Montana, New Mexico State, Notre Dame, Oklahoma, Texas, Vanderbilt and Virginia Tech.

Computer Science is the University's fastest growing program, with student hours in both lower and upper division courses having more than doubled in the past three years. The department normally diverts about one

fifth of its freshman majors into mathematics courses in order to strengthen competencies before commencing computer science. This fall, however, 76 entering majors -- 45% of the entering class -- were steered away from the entry course in computer science, many for the sole reason that our resources of qualified faculty and available terminals are at present stretched to their limit. Relatively few graduates go to postgraduate school, since the salaries offered our B.S. graduates are extraordinarily high.

Computer Science is expected to have an even greater impact upon other disciplines, including the scientific, engineering and clinical fields. The Computer Science faculty is commencing the second year of a three-year CAUSE project ($470,000 in funds provided by Western and by the National Science Foundation). The main thrust of CAUSE is the introduction of computer-assisted instruction and computer-assisted problem solving into other disciplines. During this project's first year, faculty from five other Ogden College departments developed over 100 new computer-assisted instruction modules, to be used with small and inexpensive microcomputers. Three cooperating departments have already involved over 1,000 students each in this program. It is planned to expand CAUSE activities to include interested faculty in the health sciences and clinical programs.

AGRICULTURE

Dr. L. D. Brown, Head

Faculty: 15

Terminal degrees: 11

7 Professors

4 Associate Professors

2 Assistant Professors

2 Instructors

Programs:		% Faculty Effort (1980-81)
A.S.	Agricultural Equipment Management	
A.S.	Agriculture Technology and Management	8%
B.S.	Agriculture (major)	
B.S.	Agriculture (area of concentration)	86%
M.S.	Agriculture	
M.A.Ed.	Agriculture	
M.P.S.	Agriculture	5%

DEPARTMENT OF AGRICULTURE

Student Enrollment and Faculty Effort

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981	Percent Change, 1976-1981
Lower Division SCH	2238	2672	2076	2286	2398	2804	+25
Upper Division SCH	1238	1239	1763	1650	1846	2223	+80
Graduate SCH	130	117	217	174	216	166	+28
TOTAL SCH	3606	4028	4056	4110	4460	5193	+44
FTE Faculty	10.71	10.27	12.18	13.94	12.31	13.83	+29
Student/Faculty Ratio	21.3	24.75	21.2	18.7	23.0	23.7	+11

SCH = student credit-hour FTE = full time equivalent

COMPUTER SCIENCE

programs are offered through

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Department Faculty and Programs: see MATHEMATICS, page 23

Computer Science Statistics (1976-81): following page

Computer Science

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Student Enrollment and Faculty Effort

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981**	Percent Change, 1977-1981
Lower Division SCH	*	720	888	1128	1622	1835	+155
Upper Division SCH	*	270	285	387	525	612	+127
Graduate SCH	*	9	9	6	6	45	+400
TOTAL SCH	*	999	1182	1521	2153	2492	+149
FTE Faculty	*	3.44	4.37	5.24	5.78	7.75	+125
Student/Faculty Ratio	*	18.23	17.0	18.2	23.3	20.2	+11

SCH = student credit-hour FTE = full time equivalent

*Included with Mathematics for 1976.

**Estimated

INDUSTRIAL AND ENGINEERING TECHNOLOGY

Boyce D. Tate, Head

Faculty: 26

Terminal degrees: 11 doctorates
7 M.S. Engg.*

5 Professors

12 Associate Professors

8 Assistant Professors

1 Instructor

Programs:		% Faculty Effort, 1980-81	
Engineering Technology:			
A.S.	Civil Engineering Technology		
A.S.	Electrical Engineering Technology	2%	(6% of ET)
A.S.	Mechanical Engineering Technology		
B.S.	Broadcast Engineering Technology		
B.S.	Civil Engineering Technology		
B.S.	Electrical Engineering Technology	33%	(94% of ET)
B.S.	Environmental Engineering Technology		
B.S.	Mechanical Engineering Technology		

(continued)

INDUSTRIAL AND ENGINEERING TECHNOLOGY

(continued)

Industrial Education and Technology:

A.S.	Architectural Drafting Technology		
A.S.	Aviation Maintenance Technology**		
A.S.	Building Construction Technology**		
A.S.	Drafting and Design Technology		
A.S.	Graphic Reproduction Technology**		
A.S.	Industrial Electrical Technology**		
A.S.	Industrial Plastics Technology**	36%	(55% of IET)
A.S.	Manufacturing Technology		
A.S.	Metals Technology**		
A.S.	Power Mechanics Technology**		
A.S.	Printing Technology**		
A.S.	Technical Illustration		
A.S.	Vo.-Ind. and Technical Teacher Ed.		
A.S.	Wood Products Technology**		
B.A.	Industrial Arts Education		
B.S.	Industrial Technology	27%	(41% of IET)
B.A.	Vo.-Ind. and Technical Teacher Ed.		
M.A.Ed.	Industrial Education	2.6%	(4% of IET)

* M.S. in the appropriate engineering discipline is the designated terminal degree for ABET accreditation of faculty in engineering technology programs

** Program now under study by department faculty with a view towards consolidation into a smaller number of stronger programs

Engineering Technology

DEPARTMENT OF INDUSTRIAL AND ENGINEERING TECHNOLOGY

Student Enrollment and Faculty Effort

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981**	Percent Change, 1977-1981
Lower Division SCH	1147	1135	904	913	1038	854	-26
Upper Division SCH	1057	1218	1456	1510	1413	1617	+53
Graduate SCH	--	46	7	19	18	16	...
TOTAL SCH	2204	2399	2367	2442	2469	2487	+13
FTE Faculty	8.26	10.60	10.52	10.60	11.46	11.58	+40
Student/Faculty Ratio	16.7	14.23	14.1	14.5	13.5	13.5	-19

SCH = student credit-hour FTE = full time equivalent

Industrial Education and Technology

DEPARTMENT OF INDUSTRIAL AND ENGINEERING TECHNOLOGY

Student Enrollment and Faculty Effort

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981	Percent Change, 1976-1981
Lower Division SCH	2342	2722	2647	1988	2069	1454	-38
Upper Division SCH	754	1028	1309	2519	2343	1683	+123
Graduate SCH	93	72	99	90	117	60	-35
TOTAL SCH	3189	3822	4055	4597	4529	3197	+0.3
FTE Faculty	17.67	23.41	20.15	25.33	23.98	14.67	-17
Student/Faculty Ratio	11.4	10.27	12.7	11.4	11.9	13.7	+20

SCH = student credit-hour FTE = full time equivalent

WESTERN KENTUCKY UNIVERSITY

Ogden College of Science, Technology and Health

Part 4. Health and Clinical Programs

4. Health and Clinical Programs

This area, including programs in Dental Hygiene, Medical Record Technology, Nursing, and Health and Safety, shows significant enrollment increases in the clinical programs, partly offset by a slight drop in enrollments in Health and Safety, for a moderate overall enrollment growth of 6% between 1976 and 1981. This rate of growth is sharply controlled in the clinical programs, each of which limits the size of each freshman class and consequently practices selective admission.

The statistics on the following pages (pp 42, 43, 45 and 47) show the detailed distributions of effort. The growth areas are the B.S. - Nursing curriculum and the new Medical Record Technology program.

Western's Dental Hygiene program is highly selective, currently with approximately four applicants per available position. The program is fully accredited by the Council on Dental Education of the American Dental Association. Graduating dental hygienists take the National Board Dental Hygiene Examination in order to be licensed. There are 195 schools in the Nation. Western's department ranking (based upon the mean score of each graduating class) for the years 1978, 1979 and 1980 has been 23rd (top 12th percent), 3rd (top 2%), and again 3rd nationally. The national ranking is not yet available for 1981, but again all Western DH graduates have passed the National Board examinations.

This program also provides substantial public service to the larger community, in the form of preventive dental care and referral service to numerous indigent groups, including Head Start children, City and County schoolchildren, Exceptional Industries patients, Cave Lake Opportunity Workshop patients, Teen Age Parent patients, Displaced Persons, Crippled Children patients, and nursing home patients. The estimated value of this

service has been used as 'matching funds' by some agencies; this last year the Dental Hygiene contribution helped the local Head Start program bring in $19,500 in Federal funding. The dental clinic also provides preventive dental care to Western students and faculty, for a fee. These fees generated over $7,500 for Western's general fund last year.

The Medical Record Technology program is small (two faculty members), with limited enrollment and selective admission; it is fully accredited by the Committee on Allied Health Accreditation of the American Medical Association, and by the American Medical Record Association. In the past two years 93% of its graduates have passed the national certifying examination, placing the program well into the top third nationally. About 75% of our MRT graduates are now working in Kentucky, in hospitals, nursing homes, universities and health care facilities.

Western's Medical Record Technology program is one of two in Kentucky, and is markedly the stronger of the two. Its Acting Director is President-Elect of the Southeastern Region (a 13-state area) of the American Medical Record Association.

The Department of Nursing offers a two-year (A.S.) program leading to licensure as a Registered Nurse, and a two-year advanced program, open only to R.N.'s and leading to the B.S. in Nursing. The lower division program has been permitted to expand slowly (about 6% per year) in the face of high student interest, and has become quite selective: average composite ACT scores for its entering freshmen this fall are above 22. In recent years our pass rates for the Licensure examinations have been among the highest in the State.

Both Nursing programs are fully accredited by the National League for Nursing and by the Kentucky Board of Nursing. The demand for baccalaureate nurses is very high and growing; consequently, the department has placed

emphasis upon developing and expanding its B.S. degree program for R.N.'s. Only two such programs are offered in Kentucky with NLN accreditation, at the University of Kentucky and at Western.

R.N.'s are now required to attend a number of continuing education workshops each year in order to maintain their licensure. Western's department was the second in Kentucky to be authorized by the Kentucky Board of Nursing to provide this educational service.

The Department of Health and Safety offers programs in school health, community health, and health care administration (the only such programs in western Kentucky), as well as in allied health education, driver education, occupational safety and health, and fire technology. The department offers the only graduate program in public health in the State. To the best of our knowledge, our only M.S. - Public Health graduates who are not now working in the health field are those in doctoral programs.

The most recent data indicate that 83% of the practicing graduates in Health and Safety are employed in Kentucky. Graduates also are admitted to some of the strongest postgraduate programs in health and safety, recently to Indiana, Kentucky, North Carolina, Ohio State, Southern Illinois, Tennessee, Trinity, Vanderbilt and Xavier universities.

Health and Safety faculty are recognized leaders in their professions. Two are currently presidents of their state professional organizations. The strength and reputation of our driver education faculty has resulted just this month in a transfer by the Kentucky Department of Transportation to Western (from another university) of the State's program for re-education of drinking drivers. This entails the largest single contract in the history of this College.

ALLIED HEALTH

Dr. A. Fogle Godby, Head

Faculty: 7

Terminal degrees: 2

2 Professors

2 Assistant Professors

3 Instructors

Programs:		% Faculty Effort (1980-81)
A.S.	Dental Hygiene	69%
A.S.	Medical Record Technology	31%

DENTAL HYGIENE

DEPARTMENT OF ALLIED HEALTH

Student Enrollment and Faculty Effort

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981	Percent Change 1976-1981
Lower Division SCH	288	278	248	248	268	298	+3.5%
Upper Division SCH	--	--	--	--	--	--	--
Graduate SCH	--	--	--	--	--	--	--
TOTAL SCH	288	278	248	248	268	298	+3.5%
FTE Faculty	4.50	4.13	4.57	4.50	4.50	4.50	0.0%
Student/Faculty Ratio	4.00	4.21	3.39	3.44	3.72	4.14	+3.5%

SCH = student credit-hour FTE = full time equivalent

MEDICAL RECORD TECHNOLOGY

DEPARTMENT OF ALLIED HEALTH

Student Enrollment and Faculty Effort

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981	Percent Change, 1977-1981
Lower Division SCH	--	86	85	127	308	242	+180%
Upper Division SCH	--	--	--	---	38	48	---
Graduate SCH	--	--	--	---	---	---	---
TOTAL SCH	--	86	85	127	346	290	+237%
FTE Faculty	--	0.68	1.21	1.08	1.49	1.58	+132%
Student/Faculty Ratio	--	7.90	4.39	7.35	14.51	11.47	+45%

SCH = student credit-hour FTE = full time equivalent

NURSING

Dr. Mary E. Hazzard, Head

Faculty : 22

Terminal degrees:	1
M.S.N.	7

1 Professor

8 Associate Professors

12 Assistant Professors

1 Instructor

Programs:		% Faculty Effort (1980-81)
A.S.	Nursing	78%
B.S.	Nursing	22%

DEPARTMENT OF NURSING

Student Enrollment and Faculty Effort

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981	Percent Change 1976-1981
Lower Division SCH	1331	1483	1501	1579	1675	1740	+31%
Upper Division SCH	75	216	197	309	418	596	+700%
Graduate SCH	----	----	----	----	----	12	----
TOTAL SCH	1406	1699	1698	1888	2093	2348	+67%
FTE Faculty	18.25	19.00	19.81	19.19	18.92	20.00	+9.6%
Student/Faculty Ratio	4.82	5.59	5.36	6.15	6.91	7.35	+52%

SCH = student credit-hour FTE = full time equivalent

HEALTH AND SAFETY

Dr. J. David, Dunn, Head

Faculty: 17

Terminal degrees: 13

3 Professors

9 Associate Professors

3 Assistant Professors

2 Instructors

Programs:

		% Faculty Effort (1980-81)
A.S.	Fire Technology	
A.S.	Health Care Administration	
A.S.	Occupational Safety & Health	17%
B.S.	Public Health	
B.S.	Health Care Administration	
B.S.	Health Education/School Health	
B.S.	Health and Safety	63%
B.S.	Allied Health Education	
M.S.	Public Health	
M.A.Ed.	Health Education	
M.A.Ed.	Health and Safety Education	20%

DEPARTMENT OF HEALTH AND SAFETY

Student Enrollment and Faculty Effort

	F 1976	F 1977	F 1978	F 1979	F 1980	F 1981	Percent Change, 1976-1981
Lower Division SCH	4503	4550	4101	4088	4090	3477	-23%
Upper Division SCH	1183	1546	1233	1464	1396	1517	+28%
Graduate SCH	333	229	224	396	316	246	-26%
TOTAL SCH	6019	6325	5558	5948	5802	5240	-13%
FTE Faculty	15.52	17.56	16.60	17.95	18.24	15.00	-3.4%
Student/Faculty Ratio	24.69	22.78	21.21	21.17	20.24	22.18	-10%

SCH = student credit-hour FTE = full time equivalent

5. Quality and Cost

5.1 Student/Faculty Ratios

One criterion of both operating efficiency and instructional quality is the ratio of full time equivalent students per full time equivalent faculty member, the student/faculty ratio.

Some laboratory and studio courses and all clinical programs require very low student/faculty ratios. Our clinical accreditation agencies, in fact, recommend maximum S/F ratios, to which our clinical programs conform. Other factors also may influence these ratios. Our Biology program, for example, has greatly increased its upper division course loads in the past five years (from 17% to 31% of undergraduate hours); this has entailed a number of smaller advanced classes, and has reduced the average S/F ratio for that department by about 3%.

Even with these fluctuations resulting from changes in emphasis within departments, it is useful to observe the trends in student/faculty ratio for the main program areas in the College over the past five years. This information is tabulated on page 50.

In the basic sciences the S/F ratio has moved steadily upwards, from a respectably high 20.8 in 1976 to 22.7 this fall. Given the same enrollment next fall, the scheduled reductions in faculty strength will boost this ratio to 23.9, a figure perilously high if the quality of our basic science instruction is to be maintained. Calculus courses, for example, were formerly limited in size to no more than 25 students; our calculus sections this fall are running between 40 and 45 students. Regardless of the dedication of the instructor, this is bound to affect the quality of these programs.

It is useful to combine Health and Safety programs with those of the applied sciences, thus excluding the clinical programs which are in a class by themselves. For this applied area the student/faculty ratio has increased from 17.6 (1976) to 18.7 (1981), and for the same enrollments and the presently scheduled faculty reductions will rise to 19.64 in 1982. At this level it will become difficult, perhaps impossible, to maintain the high quality of these programs.

WESTERN KENTUCKY UNIVERSITY

Ogden College of Science, Technology and Health

Trends in Full Time Students, Faculty, and Student/Faculty Ratios, 1976-1981*

	Fall Semester, 1976					Fall Semester, 1981**				
Program	SCH(UG)	SCH(Gr)	FTES	FTEF	S/F	SCH(UG)	SCH(Gr)	FTES	FTEF	S/F
Biology	6440	284	426.2	20.8	20.5	6230	167	403.3	20.3	19.9
Chemistry	4336	97	279.1	13.4	20.8	4261	152	279.0	14.4	19.4
Geog/Geol	4580	184	301.6	14.3	21.1	5322	213	350.4	15.8	22.2
Mathematics	9885	80	624.5	29.2	21.4	12757	51	801.6	29.8	26.9
Phys/Astr	4974	82	317.7	16.0	19.9	4426	9	277.4	12.9	21.5
BASIC SCIENCE	30215	727	1949.0	93.7	20.8	32996	592	2111.6	93.2	22.7
Agriculture	3467	130	228.1	10.7	21.3	5027	166	328.0	13.8	23.7
Computer Sci	990***	9	62.6	3.44	18.2***	2447	45	156.7	7.75	20.2
Engg Technol	2204	..	137.8	8.26	16.7	2471	16	155.8	11.6	13.5
Ind Ed & Tech	3096	93	201.3	17.7	11.4	3137	60	201.1	14.7	13.7
APPLIED SCIENCE	9766	232	633.9	42.2	15.0	13082	287	841.5	47.8	17.6
Dental Hyg	288	..	18.0	4.50	4.00	298	..	18.6	4.50	4.14
Med Records	..	..	..	..	..	290	..	18.1	1.58	11.5
Nursing	1406	..	87.9	18.25	4.82	2336	12	147.0	20.0	7.35
Health/Safety	5686	333	383.1	15.5	24.7	4994	246	332.6	15.0	22.2
HLTH/CLINICAL	7380	333	489.0	38.25	12.8	7918	258	516.4	41.08	12.6
TOTAL COLLEGE	47361	1292	3071.9	174.2	17.6	53996	1137	3465.3	182.1	19.0
ALL EXCEPT CLINICAL	45667	1292	2966.0	151.4	19.6	51072	1125	3281.6	156.0	21.0

*SCH = student credit-hours. UG = undergraduate. Gr = graduate. FTES = full time equivalent students. FTEF = full time equivalent faculty. S/F = student/faculty ratio.

**Preliminary data

***Fall 1977 data

WESTERN KENTUCKY UNIVERSITY

Ogden College of Science, Technology and Health

Part 6. Appendices

6.1 Grants Awarded to Ogden College Faculty, 1976-1981

Ogden College of Science, Technology and Health
Proposals Funded
January 1, 1975 - October 12, 1981

The Departments in the College of Science, Technology and Health submitted proposals which were funded in the amount of $3,220,667.18 during the period January 1, 1975 - October 12, 1981.

The proposals cover a wide range of topics, including scientific research and public service activities. The objectives of the scientific research proposals include student participation in most instances to enable the experience to add to the quality of instruction.

A significant number of proposals are funded with an objective to provide a public service function, where the unique capabilities, facilities or expertise of the University can be used in an optimum manner for the citizens of the state.

Ogden College of Science, Technology and Health
Proposals Funded
January 1, 1975 - October 12, 1981

Agriculture

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Robert Schneider	A.G. Equip. Management Program	Ky. Bureau of Voc. Education	$ 31,742	7-1-81
James Martin	Dev. of Horticulture Instruction & Demonstration Facilities	Dept. of Ag.	10,000	6-22-81
James Worthington	Plant Science Research	Monsanto	1,300	6-1-81
John Shirley	Full Lactation Response of Dairy Course Fed. EL 396	Lilly Research Labs	99,190	
James Worthington	Plant Science Research	Uniroyal Monsanto	1,500	
obert Schneider	Local Plan for Voc. Ed.	Bureau of Voc. Education	14,729	7-1-80
Wilson Stone	Bird Contamination (disease) Growth Role in Holstein Calves	U.S. Fish & Wildlife	5,000	8-3-79
Robert Schneider	Local Plan for Vocational Education	Ky. Dept. of Education	15,675	7-1-79
Alvin Bedel	Feed Rejection Research	U.S. Fish & Wildlife	9,845	12-5-78
Robert Schneider	Agricultural Equipment Management	Bureau of Voc. Education	25,271	7-1-78
Robert Schneider	Cooperative Vocational Ed. in Agriculture	Ky. Business Vocational Education	22,091	7-1-77
L. D. Brown	A Study to Determine the Marketing Potential for Western Kentucky grown Nursery Plants	Governor's Council on Agriculture	8,800	2-14-77

Ogden College of Science, Technology and Health
Proposals Funded
January 1, 1975 - October 12, 1981

Agriculture (Continued)

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Robert Schneider	Cooperative Vocational Program Agriculture for FY-'77	Ky. Bureau of Vocational Ed.	$ 22,091	7-1-76
James Worthington	Plant Science Research	Stauffer Chem. Company	800	1-22-76

Ogden College of Science, Technology and Health
Proposals Funded
January 1, 1975 - October 12, 1981

Allied Health

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Leigh Palmer	Clin. Exp. for Med. Rec. Tech. Students	CHE/AHES	$ 4,800	7-1-80
Kay Williams	Extended Clinical Exp. in Dental Hygiene	AHES	6,000	1-1-80
Leigh Palmer	Clin. Exp. for Med. Rec. Tech.	AHES	12,000	7-1-79
Kay Williams	Extended Clinical Exp. in Dental Hygiene	CHE/AHES	13,119	

Ogden College of Science, Technology and Health
Proposals Funded
January 1, 1975 - October 12, 1981

Biology

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Blaine Ferrell	Consequences of Artificially Inducing Spring Conditions in Starlings in Winter on their Breeding Success	Dept. of Interior	$ 9,974	2-25-81
Larry Elliott	Clinical Experience in Medical Tech. - FY '81	CHE/AHES	7,200	1-1-81
Robert Hoyt	Effect of Controlled Harvest on Bio. Char. of Smallmouth Buffalo in Rough River Lake, Ky.	Ky. Dept. Fish & Wildlife/Nat. Ocean & Atmos.	13,145	10-1-80
Robert Hoyt	Survey of Seasonal Zoo Plankton Concentrations in Barren River & Tailwaters	U.S. Fish & Wildlife	9,170	9-1-80
Rod McCurry	Gen. Bio. Update & Electron Microscopy	NSF	13,042	5-1-80
Larry Gleason Robert Hoyt	Research Equipment Request	NSF	8,942	5-1-80
Blaine Ferrell	Blackbird Roost Dispersal Techniques	U.S. Fish & Wildlife	4,024	12-12-79
Robert Hoyt	Study of Seasonal Fish Fauna and Movements of Fish-Barren River	National Reservoir Res. Prog.	9,500	8-15-79
Robert Hoyt	Controlled Harvest of Smallmouth Buffalo in Rough River Lake, Ky.	Ky. Dept. of Fish & Wildlife Res. & Natl. Mar. Fisheries Resrv.	12,167	10-1-79
Larry Elliott	Clinical Experience in Medical Technology	CHE/AHES	10,320	
Gary Dillard	Biology Integrity of Ky. Waters	Dept. of Natural Resources	6,400	

Ogden College of Science, Technology and Health
Proposals Funded
January 1, 1975 - October 12, 1981

Biology (Continued)

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Larry Elliott	Clinical Experience in Medical Technology	AHES	$ 10,320	1-1-79
Robert Hoyt	Life History Distribution & Harvest of Smallmouth Buffalo	Ky. Dept. of Fish & Wildlife	16,100	10-1-78
Thomas Coohill	Latent Tumor Virus Activation by Light in Mammalian Cells	HEW	115,000	9-30-78
Robert Hoyt	Fish Surveys of Tailwaters of Rivers	U.S. Dept. of	9,720	8-10-78
Rod McCurry	Electron Microscopy Project	NSF	9,866	4-10-78
Larry Elliott	Clinical Experience in Medical Technology	CHE/AHES	7,739	4-1-78
Robert Hoyt	The Occurance & Distribution of Larval Smallmouth Buffalo in Rough River Lake, KY	Dept. of Labor	20,289	7-1-77
Larry Elliott	Clinical Experience in Medical Technology	CHE/AHES	6,589	4-1-77
Tom P. Coohill	The Dose Responses and Wavelength Dependence of Latent Tumor Virus Activation by Light in Mammalian Cells	Bureau of Radiological Health	98,000	6-1-76
Robert Hoyt	Population Dynamics & Catch Susceptibility of Smallmouth Buffalo in Rough River Reservoir	Ky. Fish & Wildlife Resources	13,900	7-1-75

Ogden College of Science, Technology and Health
Proposals Funded
January 1, 1975 - October 12, 1981

Chemistry

Faculty Member	Title	Agency	Amount Funded	Beginning Date
William G. Lloyd	Predictors of Plasticity in Bituminous Coals	DOE	$200,489	9-1-81
Laurence Boucher	New Catalyst for Coal Liquid Hydrotreating	DOE	78,784	9-1-81
John Reasoner	Analytical Pyrolysis of E. Shale	IMMR	33,462	7-1-81
William G. Lloyd	Activity of Oxidation Catalysts	Teledyne Water Pik	26,853	6-15-81
John Reasoner	Analytical Pyrolysis of Eastern Shale	IMMR	7,700	5-15-81
Larry Boucher	Catalysis in Conversion of Coal Related Products	IMMR	8,000	7-1-80
John Riley	Analysis of Western Kentucky Coals	IMMR	13,500	5-15-79
Laurence Boucher	IMMR Coal Research	IMMR	14,386	7-1-79
Laurence Boucher Norman L. Holy	Catalysis in Conversion of Coal and Coal Related Products	IMMR	12,372	7-1-79
John Riley	Materials Concerning the Analytical Chemistry of Coal	IMMR	3,400	5-15-79
John Reasoner	Organic Chemistry of Coal	IMMR	3,400	7-1-79
Norman L. Holy	Removal of Nitrogen from Coal-Derived Liquids	IMMR	5,803	5-15-79
Norman L. Holy	New Metallocenes	American Chemical Society	500	
Norman L. Holy	Identification of Nitrogen & Sulfur Compounds in Coal-Derived Liquids	IMMR	12,952	7-1-78
Norman L. Holy	New Metallocenes	Petroleum Research Fund	13,000	6-1-78

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Chemistry (Continued)

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Norman L. Holy	Identification of Nitrogen & Sulfur Compounds in Coal-Derived Liquids	IMMR	$ 15,000	7-1-77
Norman L. Holy	Removal of Nitrogen from Coal Liquefaction Products	IMMR	10,000	7-1-76
Norman L. Holy	Catalytic Hydrogenation of Coal with Soluble & Supported Transition Metal Complexes.	IMMR	4,058	7-1-75

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Geography & Geology

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Albert Petersen	Folklife Survey of Big South Nat. River	National Park	52,400	
Wayne Hoffman	Geographic Mapping Services	BRADD	5,000	6-30-79
Glen Conner	Development of Dissem. of Climatological Summaries of Area Development Districts	Dept. of Local Govern.	28,554	10-15-78
Glen Conner	Climatological Summaries of Non-Metro area Development Districts	Office of Local Govern.	23,320	
Reza Ahsan	Instructional Scientific Equipment Program	NSF	3,900	6-8-76
ɔn Seeger	Instructional Scientific Equipment Program	NSF	6,000	6-8-76

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Health & Safety

Faculty Member	Title	Agency	Amount Funded	Beginning Date
George Niva	State Traffic School, Driver Licensing	Ky. Dept. of Transportation	$322,823	10-1-81
Wayne Higgins	Risk Reduction Consultation and Technical Assistance	Ky. Dept. of Human Resources	1,400	7-1-81
Wayne Higgins	Risk Reduction Consultation and Technical Assistance	Ky. Dept. of Human Resources	2,415	4-1-81
David Dunn	Risk Reduction Consultation and Technical Assistance	B.G.-W.C. Health Department	4,100	1-1-81
David Dunn	Risk Reduction Workshop	B.G.-W.C. Health Department	5,975	1-1-81
William Hourigan	Hospital Cont. Ed.	W. Ky. Hospital Cont. Ed. Consortium	38,332	10-1-80
David Dunn	Health Attitudes Survey	Ky. Dept. of Human Resources	4,644	2-28-80
Ray Biggerstaff	Field Training for Com. Health Students	CHE/AHES	22,740	
William Hourigan	AHES Coordination	CHE	24,324	7-1-79
Ray Biggerstaff	Field Training for Com. AHES	CHE	26,400	9-1-79
Don Carter	Safety Training	Koehring Atomaster	2,750	
William Hourigan	AHES Project	CHE	23,459	7-1-78
David Dunn	Field Training for Community Health Students	AHES	26,400	7-1-78
David Dunn	Field Training for Community Health Students	AHES	29,112	9-1-77
George Niva	Motorcycle Rider Program	Motorcycle Safety Found.	1,200	4-21-77

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Health & Safety (Continued)

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Henry Baughman	Basic & Refresher Training Programs for Emergency Medical Services Personnel	Ky. Dept. of Human Resources	$ 4,500	9-1-76
William Hourigan	AHES Proposal - Admin. and Projected Costs	CHE/AHES	26,000	7-1-76
Ray Biggerstaff	Field Training for Community Health Students	CPHE	29,418	8-1-76
Ray Biggerstaff	Field Work Training for Community Health Students	CHE	2,677	3-15-76
George Niva	Motorcycle Safety Workshop	Motorcycle Safety Foundation & Ky. Dept. of Ed.	1,775	4-19-76
Henry Baughman	Program Administration Contract/Dept. for Human Resources	KY Dept. of Human Resources	5,140	11-1-75
Henry Baughman	Basic Program EMT-Ambulance	KY Dept. of Human Resources	7,500	10-15-75
Ray Biggerstaff	Field Training for Community Health Students	CHE/Health Science Section	23,416	8-15-75

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Industrial & Engineering Technology

Faculty Member	Title	Agency	Amount Funded	Beginning Date
John Russell	Energy Management Assistance Program	KY DOE	$ 31,875	12-31-81
John Russell	Energy Management Assistance Program	KY DOE	6,629	4-1-81
Ron Nichols	Thermostat Compliance Program	KY DOE	13,655	4-17-80
Arthur Bush	Improvement of Surveying Classes by Electronic Distance Measuring	NSF/ISEP	6,200	
John Russell	Energy Extension Program	KY DOE	44,900	
William Moore	An Interactive Computer System for Inc. Lab Training	NSF	24,993	4-1-80
John Russell	Ind. Hygiene Lab Equipment	NSF	12,700	10-1-79
Robert Baxter	Elect. Communications Laboratory	NSF	9,935	10-1-79
Henry Healey	MSFC Solar Heating and Cooling	NASA	15,000	7-2-79
Henry Healey	Energy Mang. Assistance	DOE-KY	44,997	
Pittman, Frank	Visual Arts Program (Crafts Workshop)	IPA Program Civil Ser. Comm.	13,388.75	7-1-79
Boyce Tate	Cooperative Agreement	Florence Hutch.	188	7-1-78
Frank Pittman	Crafts Workshop & Guitar Making	KY Arts Comm.	1,835	5-1-78
Frank Pittman	Crafts Workshop (Guitar)	NEA	4,800	5-1-78
Donald Rowe	Hydrology & Water Quality in the Central KY Karst (Phase II)	Office of Water Resour. Research	18,500	2-1-76
Crisp, Jeff	Continuous In-Service Teacher Ed. Project for Voc. Region 14	KY Dept. Voc.	450	12-19-74

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Mathematics & Computer Science

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Chester Davis Robert Bueker	CAUSE Proposal	NSF	$255,680	5-11-80
Randy York	Optimal Control for an Anti-Tank Weapon	Redstone Arsenal	9,900	6-1-78
Randy York Dan St. Clair	Optimal Control of an Anti-Tank Weapon	U.S. Army Missile Command	15,949	6-1-76

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Office of the Dean

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Lynn Greeley	LCADD Water/Wastewater Program	LCADD	$ 27,782	8-1-80

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Nursing

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Mary Hazzard	Develop. and Beg. Implementation of a Model for Baccalaureate Outreach Nursing Program	KNEP Mini-Grant CHE	$ 800	7-1-81
Mary Hazzard	Gerontological Nursing	CHE	796	12-15-80
Mary Hazzard	Expansion and Curr. Revision of Nursing Program	HEW	70,438.43	5-1-80
Mary Hazzard	Nursing Cap. Grant - Assoc.	HEW PHS	23,430	7-1-80
Mary Hazzard	Nursing Cap. Grant - Bacc.	HEW PHS	8,360	7-1-80
Mary Hazzard	Nursing Capitation Grant	HEW	22,172	7-1-79
Virginia Lehmenkuler	Expansion & Curriculum of Nursing Program	PHS	72,889	5-1-79
Virginia Lehmenkuler	Nursing Capitation Grant Program	HEW	23,226	7-1-78
Virginia Lehmenkuler	Extended Clinical Nursing Experience in Rural Communities	CHE	21,944	5-1-78
Virginia Lehmenkuler	Nursing Capitation Grant Program	Bur. of Health Manpower PHS	31,945	7-1-77
Virginia Lehmenkuler	Expansion & Curriculum Revision of Nursing Program	PHS	86,834	5-1-78
Virginia Lehmenkuler	Capitation Grant #4	CPHE	36,500	2-11-76

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Physics & Astronomy

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Karen Hackney	Second Epoch Observations for Spectral Variations (SUP)	NASA	$ 1,195	10-16-81
James Parks	Cooperative Research Program in Chemical Physics	Union Carbide	7,341	7-1-81
Jim Parks	KR 81 Dating of Old Ground Water	NAGRA	7,341	6-15-81
Martin Longmire	Simulation of Infrared Search & Trach. Perf.	Naval Research Lab	28,813	6-1-81
Martin Longmire	Infrared Search Set Develop.	Naval Research Lab	16,546	1-15-81
Martin Longmire	Simulation of Infrared Search	Office of Naval Research	12,123	1-15-81
Frank Six	Ray Tracing of Jovian Low Frequency Radiation	NASA	19,917	11-1-80
Jim Parks	Chemistry Physics Cooperative Research Program	Oak Ridge Nat. Lab	87,923	7-1-80
Martin Longmire	Simulation of Infrared Search and Track	Naval Research Lab	11,131	5-16-80
Karen Hackney	IUE Satellite #3	NASA	16,000	5-16-80
Karen Hackney	Second Epoch Observe for Spectral Variations in B.L. Lacertae Objects	NASA	9,000	5-12-79
Martin Longmire	JPA Optical Sciences Assignment Agre.	Naval Research Lab	22,289	1-1-79
Jim Parks	Cooperative Res. Prog. in Chem. Physics	Oak Ridge Nat. Lab	28,860	1-1-79
Thomas Coohill	Latent Tumor Virus Activation by Light in Mammalian Cells	HEW	In Biology	9-30-78

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Physics & Astronomy (Continued)

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Dudley Bryant	Modern Electro-Optical Experiments	NSF	$ 8,100	2-24-78
Karen Hackney	Observation Ultraviolet Spectra of Radio Source OT-287	NASA	6,813	2-15-78
Thomas Bohuski	Continued Surveys for Emission Line Objects	NSF	5,995	
Tom P. Coohill	The Dose Responses and Wavelength Dependence of Latent Tumor Virus Activation by Light in Mammalian Cells	Bureau of Radiological Health	In Biology	6-1-76
Martin Longmire	Agreement with Naval Research Lab	Naval Research Lab	7,000	5-24-76
Martin Longmire	Contact with Naval Research	IPA Naval Research Laboratory	5,896	5-26-75
Jim Parks	Dev. of Sensitive Tech. for Detecting H_2O Molecules on Surfaces and in Bulk of Polyethylene	Elec. Power Res.	25,000	

6.2 Publications by Ogden College Faculty, 1980-81

Ahsan, S.R. 1980. Sugar cane and indentured labor in the West Indies. IN: Pacesetter Volume: Latin America, C. Kohn (Ed.).

Babich, M., T.P., Coohill, W. Taylor & W. Snipes. 1981. The effect of metabolic inhibitors on the large plaque effect. Photochem. Photobiol. 34:197-201

Bell, D.E. & R.D. Hoyt. 1981. Temporal and spatial dabundance and diversity of fishes in a Kentucky stream. Kentucky Acad. Sci. 41:35-44.

Boucher, L.J. & P. Rivera. 1980. Metal phthalocyanine complexes I, synthesis and properties of [Ru(CIPC) Py_2]. 4Py and [Ru(CIPC) $(PPh_3)_2$]. Inorg. Chem. 19:1816-1818.

Buckman, W.G. 1981. College Physics: Principles and Applications. D. Van Nostrand.

Byrne, F.P. 1980. The analytical chemist, his own worst enemy. IN: Impediments to Analysis, ASTM Spec. Tech. Publ. 708.

Conner, G. 1980. Wet and dry day probabilities in Kentucky. Kentucky Climate Ctr., Publ. No. 23:January, 1980.

Coohill, T.P., M. Babich, W. Taylor & W. Snipes. 1980. Herpes simples Virus produces larger plaques when assayed on ultraviolet irradiated DV-1 cells. Photochem. Photobiol. 32:97-98.

Coohill, T.P., M. Babich, W. Taylor & W. Snipes. 1980. A comparison of Herpes simplex virus plaque development rate after viral treatment with anti-DNA or anti-lipid agents. Biophysical J. 30:517-522.

Coohill, T.P. & E. Jacobson. 1981. Action spectra in mammalian cells. Invited review article--Photochemistry and Photobiology. Photochem. Photobiol. 33:941-945.

Coohill, T.P., S.P. Moore, D.J. Knauer, D. Fry, T.J. Eichenbrenner & L.E. Bockstahler. 1981. The Wavelength Dependence of Ultraviolet Radiation Activation of Latent Tumor Viruses from Mammalian Cells. HHS Publication FDA 81-8156, p.208-215.

Crawford, N.. 1980. The karst hydrogeology of the Cimberland Plateau Escarpment of Tennessee, Part III: Karst valley development in the Lost Cove Area, Franklin County, Tennessee. Ctr. Cave & Karst Studies, Western Kentucky University, Ser. 3, 21 p.

Detsch, R.M., F.D. Bryant & T.P. Coohill. 1980. The wavelength dependence. of Herpes simplex virus inactivation by ultraviolet radiation. Photochem. Photobiol. 32:173-176.

Detsch, R.M., F.D. Bryant, S.P. Moore & T.P. Coohill. 1980. The wavelength dependence of ultraviolet enhanced reactivation of Herpes simples virus inactivated by different wavelengths of UV radiation. Photochem. Photobiol. 32:271-272.

Dilamarter, R. & W. Hoffman. 1980. 1980 Field Trip Guide, Association of American Geographers.

Dilamarter, R. & J.M. Bingham. 1980. 1980 Corridors to Louisville, road log Nashville to Louisville segment, Association of American Geographers.

Dillard, G.E. 1980. Freshwater chlorophycean genera of the southeastern United States. I. Introduction and Volvocales (Polyblepharideceae). Trans. Kentucky Acad. 41:126-131.

Dillman, R.D., Jr., H.P. Bail, T.E. Holy, & N.L. Holy. 1980. Selective extraction of mercury (II) and evaluation of triphenylphosphoniumcyclopentadienylide as a phase transfer catalyst. Trans. Kentucky Acad. Sci., 41:147-149.

Elliott, L.P. 1981. Enumerating bacteria in river water and sewage effluent. Water & Eng. Management. April: 122-123.

Erskine, I. 1980. Laboratory Guide for Anatomy & Physiology. Kendall Hunt Publishing Co. 160 pp.

Farina, R.D. & R.G. Wilkins. 1980. Kinetics of interaction of some a- and b-monosaccharides with concanovalin A. Bioshimica et Biophysica Acta, 631:428-438.

Fennelly, A.J. 1980. Some effects of magnetic fields in spatially homogeneous universes with conductivity. Phys. Rev. D., 21:2107-2118.

Ferrell, B.R., H.E. Shadowen, W. Mason, T. Padgett & A.R. Stickley, Jr. 1980. Analysis of a Kentucky Blackbird-starling Roost Population from Birds Killed by PA-14 Treatment. The Kentucky Warbler, 56:72-77.

Fields, N. 1980. Preliminary geological evaluation of landfill sites in Taylor and Russell Counties, Kentucky. Report: Lake Cumberland Area Development District.

Gleason, L.N. & D.G. Hoffman. 1981. Meristogram analysis of a collection of Pomphorhynchus bulbocolli from south-central Kentucky. J. Parasitol. 67:133-134.

Greco, A.M., J.E. Winstead & F.R. Toman. 1980. Chlorophyll levels as ecotypic characters in box elder seedlings. Trans. Kentucky Acad. Sci. 41:144-146.

Greco, A.M., J.E. Winstead and F.R. Toman. 1980. Chlorophyll levels as ecotypic characters in box elder seedlings. Trans. Kentucky Acad. Sci. 41:144-146.

Hansen, M.V. and L.P. Elliott. 1980. New presumptive identification test for Clostridium perfringens: reverse DAMP test. J. Clin. Microbiol. 12:617-619.

Henrickson, C.H. & L.C. Byrd. 1980. Chemistry for the Health Professions. D. Van Nostrand.

Henrickson, C.H. & L.C. Byrd. 1980. Instructor's Manual for Chemistry for the Health Professions. D. Van Nostrand.

Hoffman, E.J., P. Mervine, J.R. McCurry & R.L. Luduena. 1980. Tubulins in detached axopodia. J. Cell Biol. 87:250a.

Hoffman, E.J., P. Mervine, J.R. McCurry & R.L. Luduena. 1980. Patterned microtubules and tubulins in detached heliozoan axopodia. J. Protozoology, 27:22A.

Hoffman, E.J., P. Mervine, J.R. McCurry & R.L. Luduena. 1980. Tubulins in detached axopodia. J. Cell Biol. 87:250a.

Holy, N.L. & R. Shalvoy. 1980. Hydrogenation with anthranilic acid anchored, polymer-bound nickel catalysts. J. Org. Chem., 45:1418.

Holy, N.L. 1980. Polymer-bound catalysts without phosphines. Chem. Tech.: June, 1980.

Houston, M.R., L.P. Elliott & T.S. Hamill. 1981. Abstract: The activation of 2-aminoanthracene by cell-free extracts of microorganisms. Absts. Ann. Meeting Amer. Soc. Microbiol. p. 130.

Hurt, V.K. and J.E. Winstead. 1980. Ecotypic differentiation of broom sedge in relation to strip mine spoil banks. Trans. Kentucky Acad. Sci. 41:132-137.

Hunter, N.W. 1980. The use of TV cassette tapes in freshman chemistry. J. College Sci. Teaching, 10:39-41.

Lloyd, W.G. and D.A. Davenport. 1980. Applying Thermodynamics to Fossil Fuels; Heats of Combustion from Elemental Compositions. J. Chem. Educ., 57:56.

Lloyd, W.G., H.E. Francis, M.R. Yewell, Jr., R.O. Kushida & V.D. Sankur. 1980. A Model for the Isothermal Plastometric Behavior of Coals. Amer. Chem. Soc. Divn. Fuel Chem. Preprints 25:no. 2:128.

Lloyd, W.G. 1981. Synfuels Technology Update. In A. Thumann, ed., The Emerging Synthetic Fuel Industry. Fairmont Press.

McDonough, J.M. & L.N. Gleason. 1981. Hisropathology in the Rainbow Darter, Etheostoma caeruleum, resulting from infections with the acanthocephalans, Pomphorhynchus bulbocolli and Acanthocephalus dirus. J. Parasitol. 67:403-309.

Mitchell, W.M., N.L. Holy, M.M. Jones, M.A. Basinger, & W.S. Vaughn. 1980. Effect of a water soluble phosphine on acute mercury poisoning. Toxicology & App. Pharmacology:June, 1980.

Moore, S.P. & T.P. Coohill. 1981. The effect of 8-methoxpsoralen on ultraviolet induction of SV40 from E-line cells. HHS Publication FDA 81-8156, p.216-225.

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Moore, T. 1980. Resources in eastern Kentucky's economic development, 1800- 1840. Abstr. S.E. Division AAG:November, 1980.

Moore, W.R. 1980. Designing your power supply. Microcomputing, August, 1980.

Orser, J.A. & G.E. Dillard. 1980. Analysis of the periphyton of Sloan's Crossing Pond, Mammoth Cave National Park, Kentucky. Trans. Kentucky Acad. Sci. 41:60-69.

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Petrakian, J.P., A.R. Cathers, J.E. Parks, R.A. MacRae, T.A. Callcott, & E.T. Arakawa. 1980. Optical properties of liquid tin between 0.62 and 3.7 eV. Phys. Rev. B, 21:3043.

Petersen, A. 1980. Field Trip Guide: Western Kentucky Coalfield, Association of American Geographers.

Riley, J.T. 1980. Tested demonstration - appetizing colloids. J. Chem. Educ., 57:153.

Shadowen, J.E., et al. 1980. Analysis of a Kentucky blackbird-starling roost population from birds killed by PA-14 treatment. The Kentucky Warbler, 56:72-77.

Shadowen, H.E. Mid-winter Bird Count, 1980-81. 1981. The Kentucky Warbler, 55:3-13.

Shirley, J.E. & J. Evans. 1980. Potential of interplanted soybean and grain sorghum plant parts to improve protein quality in ruminant diets. J. Dairy Sci., 63:138.

Winstead, J.E. 1980. Disconsolate observations at paper sessions or the unselling of information. Plt. Sci. Bull. 26:17-18.

York, R. 1980. Optimal control of an Air Defense interceptor. Proc. IEEE Southeastcon Conference:1980.

6.3 M.S. Degree Theses by Ogden College Students

AGRICULTURE

CARLISLE, Don F. M.S., 1973. Phenological and Cultural Studies of Common Dandelion (Taraxicum officinale Weber). E. Gray, W. Normand, W. Stroube.

DAVIS, William N. M.S., 1973. Yield, Crude Protein, and Crude Fiber Content of Three Forage Sorghum Cultivars During the Growing Season and After Frost. E. Gray, L. Brown, J. Skean.

HIERONYMUS, Steven. M.S., 1977. Comparison of Iron Supplements for the Prevention of Anemia in Young Pigs. G. Jones, L. Brown, R. Johnson.

JAMES, John H. M.S., 1973. Yield and Chemical Composition of Barley Silage. E. Gray, L. Brown, G. Jones.

JOHNSTON, Noel. M.S., 1977. Movement of Soil Nitrate Through a Pembroke Soil as Affected by Tillage Method and Time of Nitrogen Application. R. Johnson, E. Gray, W. Normand.

KITHCART, Russell E. M.S., 1978. Effects of Row Width and Seedling Rate on Yield and Other Agronomic Characteristics of Three Soybean Cultivars. R. Johnson, W. Normand, J. Worthington.

LACEFIELD, Garry. M.S., 1971. Distribution and Life Cycle of Nodding Thistle (Carduus nutans L.) in Kentucky. E. Gray, L. Brown, W. Stroube.

LOYD, Robert C. M.S., 1969. A Statistical Study of Sex Ratio Data from a Sample of Students at Western Kentucky University. E. Gray, L. Brown, W. Stroube.

MCCARTY, Glenn. M.S., 1970. Effects of Ensiling on the HCN Potential of Sorghum Plants. E. Gray, L. Brown, J. McGuire.

MOODY, Marlin D. M.S., 1976. Effects of Time of Application of Glyphosate in the Control of Johnson Grass. J. Worthington, L. Brown, W. Normand.

OAKES, John L. M.S., 1977. Evaluation of Herbicides for Suppression of Rhizome Growth from Johnson Grass in Corn and Soybeans. J. Worthington, R. Johnson, W. Normand.

ROGERS, Charles B. M.S., 1976. Evaluation of Glyphosate in No-Till Double Crop Soybeans Using Varying Volumes and Pressures. J. Worthington, L. Brown, W. Normand.

ROGERS, Sheryl A. M.S., 1980. Evaluation of BAS 9052 and BAS 9021 for Control of Johnson Grass in Soybeans. J. Worthington, R. Johnson, W. Normand.

SHIPE, Emerson. M.S., 1970. Reactions of Pollen-Pistil Combinations In Vitro and Their Relationships to Compatibility in Alfalfa. E. Gray, L. Brown, A. Yungbluth.

SHIRLEY, John E. M.S., 1970. Influence of Urea on the Fermentation Pattern and Nutritive Value of Corn Silage. L. Brown, W. Stroube, F. Toman.

SMEATHERS, Dan M. M.S., 1972. Hydrocyanic Acid Potential of Black Cherry Leaves. E. Gray, L. Brown, W. Normand.

STONE, Wilson L. M.S., 1978. Evaluation of Body Size Parameters in Elite Angus Cattle. G. Jones, R. Johnson, J. Worthington.

WALKER, Rebecca R. M.S., 1976. Iron Requirement of Pigs in Metal Farrowing Stalls. G. Jones, L. Brown, W. Normand.

BIOLOGY

ABDULRAHMAN, Faraq S. M.S., 1973. Chlorophyll Levels and Leaf Chloroplast Ultrastructure as Ecotypic Characters in Xanthium strumarium L. J. Winstead, G. Dillard, F. Toman.

ABEL, David G. M.S., 1972. Spatial Distribution and Temporal Occurrence of Rotifers in the Mainpool and Tailwater of Barren Lake, Kentucky. R. Prins, G. Dillard, R. Hoyt.

ARNOLD, Sally C. M.S., 1979. A Taxonomic and Physiographic Survey of Scirpus in Kentucky with Problem Species-Complex Analysis. E. Beal, G. Dillard, K. Nicely.

BELL, David E. M.S., 1977. Seasonal Abundance and Diversity of Fishes at Three Stations on the Middle Fork of Drake's Creek, Warren and Allen Counties, Kentucky. R. Hoyt, G. Dillard, R. Prins.

BLAINE, Linda. M.S., 1973. The Effectiveness of the Nitrate Ion Selective Electrode as a Quantitative Method for Low Levels of Nitrate. F. Toman, E. Beal, D. Hartman.

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BUCKNER, Richard L. M.S., 1972. A Study of the Seasonal Incidence of the Arthropod and Helminth Parasites of the Prairie Vole, Microtus ochrogaster, and the Wood Mouse, Peromyscus leucopus, in an Area of Warren County, Kentucky. L. Gleason, R. Hoyt, K. Nicely.

CARLUCCI, Richard. M.S., 1975. Lethality of and Elicitation of Protective Antibody by Vibrio parahaemolyticus ATCC 17803. J. Skean. L. Elliott, S. Ford.

COBB, Bobby E. M.S., 1978. Synergistic Effects of Wavelengths of Ultraviolet Radiation on Capacity in a Mammalian Cell-Virus System In Vitro. T. Coohill, F. Morgado, T. Yungbluth.

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DAHL, Thomas E. M.S., 1978. An Analysis of the Heavy Metal Content. of the Scales of Several Fishes in Southwestern Kentucky. R. Hoyt, G. Dillard, R. Prins.

DANIEL, Larry W. M.S., 1975. The Metabolism of Tartaric Acid by Aspergillus ficuum. L. Elliott, M. Houston, L. Lockwood.

DEL TITO, Benjamin J. M.S., 1980. A Comparison of Vitamin A_1 and A_2 Levels and the Role of Beta-Carotene and Lutein in the Synthesis of Vitamin A in Freshwater Fishes. R. Hoyt, L. Gleason, F. Toman.

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WESTERN KENTUCKY UNIVERSITY

Ogden College of Science, Technology and Health

REPORT TO THE UNIVERSITY REGENTS, October 1981

WESTERN KENTUCKY UNIVERSITY

Ogden College of Science, Technology and Health

Part 1. Overview

1. Overview of Ogden College

One of the four academic colleges making up the University, Ogden College of Science, Technology and Health is composed of ten departments (page 4), approximately 190 faculty members, and a student body generating over 100,000 SCH (student credit-hours) per year.

The principal administrative officer of the College is the Dean, who reports to the Vice President for Academic Affairs. The Dean is assisted by the Associate Dean and the Assistant Dean. The division of administrative responsibility is shown on the Areas of Responsibility chart (page 5), and is described in greater detail in the job descriptions (pages 6-9).

The ten Department Heads are responsible for the administration of their respective programs. Deans and Department Heads meet in scheduled meetings each Wednesday, and additionally when occasion demands. The other major agencies of academic administration within Ogden College are the College Curriculum Committee (department heads, one elected faculty member from each department, and student representatives) and the College Graduate Committee (one elected member of the graduate faculty from each department having an active graduate program). These committees are the primary agencies of internal quality control of the academic programs. All proposals for new programs, new courses, or changes in programs or courses must be approved by the appropriate College committee before being submitted to the University's Academic Council or Graduate Council for consideration.

The broad range of academic programs within Ogden College can conveniently be grouped in the areas of Basic Sciences (Biology, Chemistry, Geography, Geology, Mathematics, and Physics and Astronomy), Applied Sciences (Agriculture, Computer Science, Engineering Technology, Industrial Education

and Technology), and Health and Clinical Programs (Dental Hygiene, Medical Record Technology, Nursing, and Health and Safety). At the lower division level these programs generate approximately 40,000 credit-hours per semester, over half of these in the Basic Sciences. In the past five years overall growth has been moderate, but growth in the Applied Sciences has been strong, averaging 4% per year (table, page 10).

Upper division courses in the College represent only about one-third the credit-hour production of the lower division. This is a common phenomenon, due mainly to the large numbers of non-science majors who take several lower-division science and mathematics courses. This also reflects the 'pyramidal' nature of university science education, in which, for example, a Biology major will take a number of courses in Mathematics, Physics and Chemistry -- mostly lower-division courses -- to provide the solid basis for advanced studies in the life sciences. The third factor is attrition of students who find themselves unable to master a particular area of science and will often turn to another field.

The strength of upper division enrollments is a good indicator of the disciplinary strengths of a science college. During the past five years, all three areas of Ogden College have shown very strong growth in upper division enrollments (table, page 11): upper division credit hours in the basic sciences are up by 70%, those in the health and clinical programs are up by 72%, and those in the applied sciences have more than doubled. This reflects both a general across-the-board building of baccalaureate programs and also the development of strong new programs in Computer Science and Nursing.

The College's graduate programs in the basic sciences and in Health and Safety have shared in the general nationwide decline in graduate studies,

averaging about 20% over the past five years. Exceptions to this trend are Agriculture and Chemistry (table, page 12). The new M.S. degree program in Computer Science has attracted considerable interest and appears likely to become an important part of the College's graduate programs.

College enrollment data for the past five years are summarized on page 13. All three areas of College activities show significant growth in student enrollments during this period, led by the Applied Sciences.

The following sections of this report provide detailed information regarding individual departments and programs.

ASSOCIATE DEAN, OCSTH

The Associate Dean shall serve as the alternate for the Dean, and shall act on behalf of the Dean and on behalf of the College in the absence of the Dean. The Associate Dean shall represent the College at meetings of the Council of Deans, the Council of Academic Deans, the Administrative Council, and other regular or ad hoc meetings at which College administrative representation is desired and when the Dean is unable to attend.

The Associate Dean shall have, in addition, primary responsibility for the following areas of OCSTH activities:

1. Graduate Programs. The Associate Dean shall have primary planning and policy development responsibility with regard to the development/recision of graduate programs. The Associate Dean shall chair meetings of the OCSTH Graduate Committee. The Associate Dean shall also be responsible for the instructional quality control of graduate courses and programs offered by OCSTH, and shall serve as the College Office's liaison with the several departmental graduate committees.

2. Research and Extramural Funding. The Associate Dean shall have primary responsibility for encouragement and administrative support of faculty efforts to obtain extramural funding. The Associate Dean will be the College Office's liaison with the Office of Grants and Contracts with regard to agency and other sources of research funding. The Associate Dean will develop policies with regard to the use of special assignment time to assist those faculty members with serious research interests in becoming more active in this area.

Associate Dean, OCSTH

3. Student Recruitment and School Relations. The Associate Dean shall have primary responsibility for working with a college-wide committee to develop and implement an effective recruitment program. Recognizing that the principal obstacle to high school recruitment in this part of the country is not superior recruitment by other colleges but rather a lack of awareness of the advantages of college educations, the Associate Dean will undertake to develop and implement an improved program of relations with secondary school teachers of mathematics and the sciences.

4. Student Relations. The Associate Dean will manage correspondence, inquiries and complaints from students or prospective students of the College. When necessary and in accordance with University regulations, the Associate Dean will designate an ad hoc Chairperson for the OCSTH Academic Complaint Committee, and shall ensure that complaints properly brought to the College office are accorded a hearing by this Committee. (The Associate Dean may at his discretion sit in on such hearings, but should play no active part. This is in accord with OCSTH policy of maintaining an appropriate separation between administrative and quasi-judicial functions.)

ASSISTANT DEAN, OCSTH

The Assistant Dean shall be a part of the College management team, and shall act on behalf of the College in the absence of the Dean and the Associate Dean. The Assistant Dean will from time to time be asked to represent the College at regular or special University administrative meetings.

In addition, the Assistant Dean shall have primary responsibility for the following areas of OCSTH activities:

1. Management of Office and Staff. The Assistant Dean shall have primary responsibility for management and oversight of the OCSTH office staff and equipment, and of the various staff operations maintained by the College (machine shop, electronics shop, etc.). The Assistant Dean shall establish and implement procedures to permit assessment of the quality and quantity of tasks performed by OCSTH staff personnel. Looking forward to the time when we may be asked to operate under closer accounting control, the Assistant Dean is also charged with development of a service recharge plan such as that in current use at the University of Kentucky.

2. Space Allocation and Utilization. The Assistant Dean will be primarily involved in developing and implementing policy with regard to space allocation and utilization. Requests for space use from those outside the College will be handled by the Assistant Dean. (Where space allocation has evident and significant impact upon academic programs, the Assistant Dean will of course confer with his associates.)

3. Monitoring of Accounts. The Assistant Dean is the principal financial officer of the College. He/she will assume principal responsibility for oversight

of OCSTH office accounts, for oversight and monitoring of the College's Graduate Assistantship funds, and for initiating and following through all major capital purchases for the College. When an extramural grant has been obtained, the Assistant Dean will meet with the faculty member who is Principal Investigator, ascertain that the P.I. understands what should be done in order to use the funds to implement his/her project, and provide guidance and assistance where appropriate.

4. Public Service. The Assistant Dean shall have primary responsibility for the College's Public Service activities and for our relations with business and industry in the area. He shall take initiative where appropriate in facilitating the establishment of training workshops for industrial and public employees. He shall serve as the College's liaison with the University's Office of Cooperative Education.

5. Liaison to Nonacademic Operations. The Assistant Dean shall serve as the College's advisor and liaison for projects/tasks which entail working with the University's Physical Plant Department, for research P.I.'s who have special purchasing needs in connection with their projects, and in handling other matters involving those elements of the University external to the Office of Academic Affairs.

WESTERN KENTUCKY UNIVERSITY

Ogden College of Science, Technology and Health

Part 2. The Basic Sciences

2. The Basic Sciences

The Basic Sciences (Biology, Chemistry, Geography, Geology, Mathematics, and Physics and Astronomy) represent the largest single grouping within the College. Between fall 1976 and fall 1981 enrollments in these programs have increased by 13.5% while faculty instructional effort (FTEF = full time equivalent faculty) has remained essentially constant (down by 0.5%).

The detailed statistics of faculties, degree programs offered, and student enrollments at various levels for the past five years are presented alphabetically by department in a series of tables (pages 17-26).

The quality of instructional programs is difficult to capture in credit hour tabulations. The paragraphs which follow present several aspects of the quality and integrity of the programs in the basic sciences.

One indicator of quality is the acceptance of B.S. science graduates into postgraduate and professional schools. In the last five years the graduates from four of our programs (biology, chemistry, mathematics and physics) have been admitted to postgraduate schools in record numbers: 64% of our recent graduates from these programs have gone on into graduate or professional studies. This is an extraordinarily high figure for a public university.

An indicator of graduate program quality is acceptance of a M.S. graduate into a doctoral program with advanced graduate status. Among recent M.S. graduates in Chemistry, Geography, Biology, Physics, Geography and Mathematics, between 35% and 45% have undertaken doctoral studies.

Another indicator of program quality is the stature of the institutions accepting our graduates. Among the major universities accepting our B.S. and M.S. science graduates into doctoral and professional studies

are Auburn, Cornell, Georgetown (DC), Georgia, Kentucky, Louisville, Massachusetts, Michigan State, Missouri, Nebraska, North Carolina State, Ohio State, Oklahoma State, Pennsylvania State, SUNY - Binghamton, Tennessee, Texas, Vanderbilt and Virginia Tech (VPI).

Another indicator of quality is the acceptance rate of our student candidates into the professional schools of medicine, dentistry and pharmacy. For the decade just ended the acceptance rate for Western students into medical schools has been 58%, one of the highest of any public university. Over the same period the acceptance rate of Western students into dental schools has averaged 67%, and for pharmacy schools 80%. This is, we believe, the best admissions record of any of the eight state universities. In 1979 and 1980 the rates have been still higher, 20 for 26 applicants (77%) for dentistry, and 36 for 39 applicants (92%) for pharmacy.

It is no coincidence that the basic science departments have established records of research and scholarly activities, as evidenced by the number of publications in nationally recognized journals. In every recent year more papers are listed in the Science Citation Index from Western than from any other non-doctoral institution in Kentucky.

Excellence in research can bring other dividends. One science department in the last three months has brought three research grants totalling over $300,000 in outside money, mostly from the U.S. Department of Energy. These grants include funds which will support four graduate students on research assistantships, as well as underwriting the purchase of more than $60,000 in new instrumentation and equipment which could not otherwise have been obtained (see Appendix 6.1).

Our Geography program is the oldest, largest and strongest in the State. The Federal government selected Western as the institution to house Kentucky's State Climatologist. In July 1981 the International Congress of

Speleology held its first meeting ever in North America, with representatives from more than two dozen foreign countries. The host organization for this major event was Western's Department of Geography and Geology.

One of our faculty is editor of the national Biophysics Newsletter. Another is just returned from a year on an Alexander von Humboldt (West German government) Fellowship, the only U.S. Fellow from other than a major research university. Two others in the College have recently returned from Fulbright Lectureships abroad. The faculty of this College includes dozens who are regularly published in major referee'd scientific journals. For at least one major Federal agency, Western is the principal academic research contractor in the State. In at least half a dozen fields we have experts of significant national reputation. Viewed in conjunction with the high teaching loads and the growing student/faculty ratio in the sciences, the consistently high quality of the basic science programs is noteworthy.

BIOLOGY

Dr. J. H. Jenkins, Head

Faculty: 21

Terminal degrees: 19

13 Professors

3 Associate Professors

4 Assistant Professors

1 Instructor

Programs:		% Faculty Effort (1980-81)
Minor	Biophysics	10%
B.S.	Biology	85%
B.S.	Psychobiology	
M.S.	Biology	5%
M.A.Ed.	Biology	
Ph.D.	Biology (cooperative with U of L)	(0%)

CHEMISTRY

Dr. L. J. Boucher, Head

Faculty: 16

Terminal degrees: 14

8 Professors

8 Associate Professors

Programs:		% Faculty Effort (1980-81)
A.S.	Coal Technology	(0%)
B.S.	Chemistry	91%
M.S.	Chemistry	
M.A.Ed.	Chemistry	9%
Ph.D.	Chemistry (cooperative with U of L)	(0%)

GEOGRAPHY AND GEOLOGY

Dr. Wayne L. Hoffman, Head

Faculty: 16

Terminal degrees: 13

10 Professors

2 Associate Professors

3 Assistant Professors

1 Instructor

Programs:

		% Faculty Effort (1980-81)
A.S.	Cartographic and Mapping Technol.	
A.S.	Meteorological Technol.	2.2%
B.S.	Geography	
B.S.	Earth Science	
B.S.	Geology	
B.S.	Geophysics*	
B.S.	Regional Planning	89%
B.S.	Hydrology	
M.S.	Geography	
M.A.Ed.	Geography	
M.P.S.	City and Regional Planning	9%

*Recommended for withdrawal as major.

MATHEMATICS AND COMPUTER SCIENCE

Dr. Robert C. Bueker, Head

Faculty: 34

Terminal degrees: 17

11 Professors

6 Associate Professors

10 Assistant Professors

7 Instructors

Programs:		% Faculty Effort (1980-81)
A.B.	Mathematics	
B.S.	Computer Science	94%
M.S.	Mathematics	
M.A.Ed.	Mathematics	
M.S.	Computer Science	6%

PHYSICS AND ASTRONOMY

Dr. N. Frank Six, Head

Faculty: 16

Terminal degrees: 13

5 Professors

9 Associate Professors

2 Assistant Professors

Programs:

		% Faculty Effort (1980-81)
B.S.	Engineering Physics	
B.S.	Physics	
B.S.	Physics and Astronomy	
B.S.	General Science	81%
B.S.	Mathematics and Physical Science	
M.S.	Physics*	
M.S.	Engineering Physics*	
M.A.Ed.	Physics*	19%

*Recommended for suspension by department graduate faculty.

WESTERN KENTUCKY UNIVERSITY

Ogden College of Science, Technology and Health

Part 3. Applied Science and Technology

3. Applied Science and Technology

This area, including programs in Agriculture, Computer Science, Engineering Technology, and Industrial Education and Technology, is undergoing the most rapid growth in the College. Agriculture over the past five years has increased its student credit hour production by 44%. Engineering Technology is up 13%. Industrial Education and Technology enrollments have fluctuated with the changing employment market; 1981 constitutes a 'dip' and its overall numbers are little changed. Computer Science shows an overall growth rate in the last four years of 150%.

The statistics on the following pages (pp 31, 33, 36) show in detail the striking growth rates in the applied sciences. During periods of rapid growth we have special obligations to monitor program quality. The following paragraphs relate to the levels of excellence maintained in these programs.

With approximately 475 majors and current class enrollments above 5,000 SCH, the 15-member Agriculture department is heavily involved in teaching. Beyond the elementary courses, however, much of the teaching is accomplished by 'learning to do'. The University Farm raises and harvests various crops, and breeds cattle and swine. The Farm costs approximately $250,000 per year to operate; but it earns back all of this by marketing its produce, providing in effect a cost-free 'laboratory' for its students. Last year the University Farm also provided more than $33,000 in student wages, helping many an Ag student to work his/her way through college. A recent survey shows that over 90% of Agriculture graduates remain in an agricultural profession; over 92% remain in Kentucky.

Western's dairy husbandry group is one of the best in the country, and Western's dairy herd has been nationally ranked for years. In 48 of the 50 states the top ranked dairy herd is private or is commercially owned. Kentucky is one of only two states in which the top-ranked herd is owned by a University: Western. This past summer a major out-of-state corporation sought a nationally prominent dairy operation to arrange feeding tests. They came to Western, and the project is currently providing over $100,000 per year of out-of-state money for the department and its students.

Another measure of excellence of the Agriculture program is the admissions rate of its graduates into schools of veterinary medicine -- now the most intensely competitive of all professional schools. A student graduating Western's Ag program not only has the best chance of admission in the State; his/her chances are nearly half again as good as if that student were graduating from the second best program in the State.

Three Kentucky universities offer programs in engineering technology. Western's B.S. programs in civil and in electrical E.T. are among two (each) which are nationally accredited by the Engineers Council for Professional Development. Our programs in mechanical and in environmental E.T. are the only programs in Kentucky with ECPD accreditation. Graduates are in high demand and at excellent salaries. Furthermore, notwithstanding well-defined distinctions between engineering programs and engineering technology programs, many of Western's E.T. baccalaureates have earned postgraduate degrees in engineering from major universities, among them Kentucky, Montana, New Mexico State, Notre Dame, Oklahoma, Texas, Vanderbilt and Virginia Tech.

Computer Science is the University's fastest growing program, with student hours in both lower and upper division courses having more than doubled in the past three years. The department normally diverts about one

fifth of its freshman majors into mathematics courses in order to strengthen competencies before commencing computer science. This fall, however, 76 entering majors -- 45% of the entering class -- were steered away from the entry course in computer science, many for the sole reason that our resources of qualified faculty and available terminals are at present stretched to their limit. Relatively few graduates go to postgraduate school, since the salaries offered our B.S. graduates are extraordinarily high.

Computer Science is expected to have an even greater impact upon other disciplines, including the scientific, engineering and clinical fields. The Computer Science faculty is commencing the second year of a three-year CAUSE project ($470,000 in funds provided by Western and by the National Science Foundation). The main thrust of CAUSE is the introduction of computer-assisted instruction and computer-assisted problem solving into other disciplines. During this project's first year, faculty from five other Ogden College departments developed over 100 new computer-assisted instruction modules, to be used with small and inexpensive microcomputers. Three cooperating departments have already involved over 1,000 students each in this program. It is planned to expand CAUSE activities to include interested faculty in the health sciences and clinical programs.

AGRICULTURE

Dr. L. D. Brown, Head

Faculty: 15

Terminal degrees: 11

7 Professors

4 Associate Professors

2 Assistant Professors

2 Instructors

Programs:		% Faculty Effort (1980-81)
A.S.	Agricultural Equipment Management	
A.S.	Agriculture Technology and Management	8%
B.S.	Agriculture (major)	
B.S.	Agriculture (area of concentration)	86%
M.S.	Agriculture	
M.A.Ed.	Agriculture	
M.P.S.	Agriculture	5%

COMPUTER SCIENCE

programs are offered through

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Department Faculty and Programs: see MATHEMATICS, page 23

Computer Science Statistics (1976-81): following page

INDUSTRIAL AND ENGINEERING TECHNOLOGY

Boyce D. Tate, Head

Faculty: 26

Terminal degrees: 11 doctorates
7 M.S. Engg.*

5 Professors

12 Associate Professors

8 Assistant Professors

1 Instructor

Programs:		% Faculty Effort, 1980-81	
Engineering Technology:			
A.S.	Civil Engineering Technology		
A.S.	Electrical Engineering Technology	2%	(6% of ET)
A.S.	Mechanical Engineering Technology		
B.S.	Broadcast Engineering Technology		
B.S.	Civil Engineering Technology		
B.S.	Electrical Engineering Technology	33%	(94% of ET)
B.S.	Environmental Engineering Technology		
B.S.	Mechanical Engineering Technology		

(continued)

WESTERN KENTUCKY UNIVERSITY

Ogden College of Science, Technology and Health

Part 4. Health and Clinical Programs

4. Health and Clinical Programs

This area, including programs in Dental Hygiene, Medical Record Technology, Nursing, and Health and Safety, shows significant enrollment increases in the clinical programs, partly offset by a slight drop in enrollments in Health and Safety, for a moderate overall enrollment growth of 6% between 1976 and 1981. This rate of growth is sharply controlled in the clinical programs, each of which limits the size of each freshman class and consequently practices selective admission.

The statistics on the following pages (pp 42, 43, 45 and 47) show the detailed distributions of effort. The growth areas are the B.S. - Nursing curriculum and the new Medical Record Technology program.

Western's Dental Hygiene program is highly selective, currently with approximately four applicants per available position. The program is fully accredited by the Council on Dental Education of the American Dental Association. Graduating dental hygienists take the National Board Dental Hygiene Examination in order to be licensed. There are 195 schools in the Nation. Western's department ranking (based upon the mean score of each graduating class) for the years 1978, 1979 and 1980 has been 23rd (top 12th percent), 3rd (top 2%), and again 3rd nationally. The national ranking is not yet available for 1981, but again all Western DH graduates have passed the National Board examinations.

This program also provides substantial public service to the larger community, in the form of preventive dental care and referral service to numerous indigent groups, including Head Start children, City and County schoolchildren, Exceptional Industries patients, Cave Lake Opportunity Workshop patients, Teen Age Parent patients, Displaced Persons, Crippled Children patients, and nursing home patients. The estimated value of this

service has been used as 'matching funds' by some agencies; this last year the Dental Hygiene contribution helped the local Head Start program bring in $19,500 in Federal funding. The dental clinic also provides preventive dental care to Western students and faculty, for a fee. These fees generated over $7,500 for Western's general fund last year.

The Medical Record Technology program is small (two faculty members), with limited enrollment and selective admission; it is fully accredited by the Committee on Allied Health Accreditation of the American Medical Association, and by the American Medical Record Association. In the past two years 93% of its graduates have passed the national certifying examination, placing the program well into the top third nationally. About 75% of our MRT graduates are now working in Kentucky, in hospitals, nursing homes, universities and health care facilities.

Western's Medical Record Technology program is one of two in Kentucky, and is markedly the stronger of the two. Its Acting Director is President-Elect of the Southeastern Region (a 13-state area) of the American Medical Record Association.

The Department of Nursing offers a two-year (A.S.) program leading to licensure as a Registered Nurse, and a two-year advanced program, open only to R.N.'s and leading to the B.S. in Nursing. The lower division program has been permitted to expand slowly (about 6% per year) in the face of high student interest, and has become quite selective: average composite ACT scores for its entering freshmen this fall are above 22. In recent years our pass rates for the Licensure examinations have been among the highest in the State.

Both Nursing programs are fully accredited by the National League for Nursing and by the Kentucky Board of Nursing. The demand for baccalaureate nurses is very high and growing; consequently, the department has placed

emphasis upon developing and expanding its B.S. degree program for R.N.'s. Only two such programs are offered in Kentucky with NLN accreditation, at the University of Kentucky and at Western.

R.N.'s are now required to attend a number of continuing education workshops each year in order to maintain their licensure. Western's department was the second in Kentucky to be authorized by the Kentucky Board of Nursing to provide this educational service.

The Department of Health and Safety offers programs in school health, community health, and health care administration (the only such programs in western Kentucky), as well as in allied health education, driver education, occupational safety and health, and fire technology. The department offers the only graduate program in public health in the State. To the best of our knowledge, our only M.S. - Public Health graduates who are not now working in the health field are those in doctoral programs.

The most recent data indicate that 83% of the practicing graduates in Health and Safety are employed in Kentucky. Graduates also are admitted to some of the strongest postgraduate programs in health and safety, recently to Indiana, Kentucky, North Carolina, Ohio State, Southern Illinois, Tennessee, Trinity, Vanderbilt and Xavier universities.

Health and Safety faculty are recognized leaders in their professions. Two are currently presidents of their state professional organizations. The strength and reputation of our driver education faculty has resulted just this month in a transfer by the Kentucky Department of Transportation to Western (from another university) of the State's program for re-education of drinking drivers. This entails the largest single contract in the history of this College.

ALLIED HEALTH

Dr. A. Fogle Godby, Head

Faculty: 7

Terminal degrees: 2

2 Professors

2 Assistant Professors

3 Instructors

Programs:		% Faculty Effort (1980-81)
A.S.	Dental Hygiene	69%
A.S.	Medical Record Technology	31%

NURSING

Dr. Mary E. Hazzard, Head

Faculty : 22

Terminal degrees:	1
M.S.N.	7

1 Professor

8 Associate Professors

12 Assistant Professors

1 Instructor

Programs:		% Faculty Effort (1980-81)
A.S.	Nursing	78%
B.S.	Nursing	22%

HEALTH AND SAFETY

Dr. J. David, Dunn, Head

Faculty: 17

Terminal degrees: 13

3 Professors

9 Associate Professors

3 Assistant Professors

2 Instructors

Programs:

		% Faculty Effort (1980-81)
A.S.	Fire Technology	
A.S.	Health Care Administration	
A.S.	Occupational Safety & Health	17%
B.S.	Public Health	
B.S.	Health Care Administration	
B.S.	Health Education/School Health	
B.S.	Health and Safety	63%
B.S.	Allied Health Education	
M.S.	Public Health	
M.A.Ed.	Health Education	
M.A.Ed.	Health and Safety Education	20%

5. Quality and Cost

5.1 Student/Faculty Ratios

One criterion of both operating efficiency and instructional quality is the ratio of full time equivalent students per full time equivalent faculty member, the student/faculty ratio.

Some laboratory and studio courses and all clinical programs require very low student/faculty ratios. Our clinical accreditation agencies, in fact, recommend maximum S/F ratios, to which our clinical programs conform. Other factors also may influence these ratios. Our Biology program, for example, has greatly increased its upper division course loads in the past five years (from 17% to 31% of undergraduate hours); this has entailed a number of smaller advanced classes, and has reduced the average S/F ratio for that department by about 3%.

Even with these fluctuations resulting from changes in emphasis within departments, it is useful to observe the trends in student/faculty ratio for the main program areas in the College over the past five years. This information is tabulated on page 50.

In the basic sciences the S/F ratio has moved steadily upwards, from a respectably high 20.8 in 1976 to 22.7 this fall. Given the same enrollment next fall, the scheduled reductions in faculty strength will boost this ratio to 23.9, a figure perilously high if the quality of our basic science instruction is to be maintained. Calculus courses, for example, were formerly limited in size to no more than 25 students; our calculus sections this fall are running between 40 and 45 students. Regardless of the dedication of the instructor, this is bound to affect the quality of these programs.

It is useful to combine Health and Safety programs with those of the applied sciences, thus excluding the clinical programs which are in a class by themselves. For this applied area the student/faculty ratio has increased from 17.6 (1976) to 18.7 (1981), and for the same enrollments and the presently scheduled faculty reductions will rise to 19.64 in 1982. At this level it will become difficult, perhaps impossible, to maintain the high quality of these programs.

WESTERN KENTUCKY UNIVERSITY

Ogden College of Science, Technology and Health

Part 6. Appendices

6.1 Grants Awarded to Ogden College Faculty, 1976-1981

Ogden College of Science, Technology and Health
Proposals Funded
January 1, 1975 - October 12, 1981

The Departments in the College of Science, Technology and Health submitted proposals which were funded in the amount of $3,220,667.18 during the period January 1, 1975 - October 12, 1981.

The proposals cover a wide range of topics, including scientific research and public service activities. The objectives of the scientific research proposals include student participation in most instances to enable the experience to add to the quality of instruction.

A significant number of proposals are funded with an objective to provide a public service function, where the unique capabilities, facilities or expertise of the University can be used in an optimum manner for the citizens of the state.

Ogden College of Science, Technology and Health
Proposals Funded
January 1, 1975 - October 12, 1981

Agriculture

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Robert Schneider	A.G. Equip. Management Program	Ky. Bureau of Voc. Education	$ 31,742	7-1-81
James Martin	Dev. of Horticulture Instruction & Demonstration Facilities	Dept. of Ag.	10,000	6-22-81
James Worthington	Plant Science Research	Monsanto	1,300	6-1-81
John Shirley	Full Lactation Response of Dairy Course Fed. EL 396	Lilly Research Labs	99,190	
James Worthington	Plant Science Research	Uniroyal Monsanto	1,500	
obert Schneider	Local Plan for Voc. Ed.	Bureau of Voc. Education	14,729	7-1-80
Wilson Stone	Bird Contamination (disease) Growth Role in Holstein Calves	U.S. Fish & Wildlife	5,000	8-3-79
Robert Schneider	Local Plan for Vocational Education	Ky. Dept. of Education	15,675	7-1-79
Alvin Bedel	Feed Rejection Research	U.S. Fish & Wildlife	9,845	12-5-78
Robert Schneider	Agricultural Equipment Management	Bureau of Voc. Education	25,271	7-1-78
Robert Schneider	Cooperative Vocational Ed. in Agriculture	Ky. Business Vocational Education	22,091	7-1-77
L. D. Brown	A Study to Determine the Marketing Potential for Western Kentucky grown Nursery Plants	Governor's Council on Agriculture	8,800	2-14-77

Ogden College of Science, Technology and Health
Proposals Funded
January 1, 1975 - October 12, 1981

Agriculture (Continued)

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Robert Schneider	Cooperative Vocational Program Agriculture for FY-'77	Ky. Bureau of Vocational Ed.	$ 22,091	7-1-76
James Worthington	Plant Science Research	Stauffer Chem. Company	800	1-22-76

Ogden College of Science, Technology and Health
Proposals Funded
January 1, 1975 - October 12, 1981

Allied Health

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Leigh Palmer	Clin. Exp. for Med. Rec. Tech. Students	CHE/AHES	$ 4,800	7-1-80
Kay Williams	Extended Clinical Exp. in Dental Hygiene	AHES	6,000	1-1-80
Leigh Palmer	Clin. Exp. for Med. Rec. Tech.	AHES	12,000	7-1-79
Kay Williams	Extended Clinical Exp. in Dental Hygiene	CHE/AHES	13,119	

Ogden College of Science, Technology and Health
Proposals Funded
January 1, 1975 - October 12, 1981

Biology

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Blaine Ferrell	Consequences of Artificially Inducing Spring Conditions in Starlings in Winter on their Breeding Success	Dept. of Interior	$ 9,974	2-25-81
Larry Elliott	Clinical Experience in Medical Tech. - FY '81	CHE/AHES	7,200	1-1-81
Robert Hoyt	Effect of Controlled Harvest on Bio. Char. of Smallmouth Buffalo in Rough River Lake, Ky.	Ky. Dept. Fish & Wildlife/Nat. Ocean & Atmos.	13,145	10-1-80
Robert Hoyt	Survey of Seasonal Zoo Plankton Concentrations in Barren River & Tailwaters	U.S. Fish & Wildlife	9,170	9-1-80
Rod McCurry	Gen. Bio. Update & Electron Microscopy	NSF	13,042	5-1-80
Larry Gleason Robert Hoyt	Research Equipment Request	NSF	8,942	5-1-80
Blaine Ferrell	Blackbird Roost Dispersal Techniques	U.S. Fish & Wildlife	4,024	12-12-79
Robert Hoyt	Study of Seasonal Fish Fauna and Movements of Fish-Barren River	National Reservoir Res. Prog.	9,500	8-15-79
Robert Hoyt	Controlled Harvest of Smallmouth Buffalo in Rough River Lake, Ky.	Ky. Dept. of Fish & Wildlife Res. & Natl. Mar. Fisheries Resrv.	12,167	10-1-79
Larry Elliott	Clinical Experience in Medical Technology	CHE/AHES	10,320	
Gary Dillard	Biology Integrity of Ky. Waters	Dept. of Natural Resources	6,400	

Ogden College of Science, Technology and Health
Proposals Funded
January 1, 1975 - October 12, 1981

Biology (Continued)

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Larry Elliott	Clinical Experience in Medical Technology	AHES	$ 10,320	1-1-79
Robert Hoyt	Life History Distribution & Harvest of Smallmouth Buffalo	Ky. Dept. of Fish & Wildlife	16,100	10-1-78
Thomas Coohill	Latent Tumor Virus Activation by Light in Mammalian Cells	HEW	115,000	9-30-78
Robert Hoyt	Fish Surveys of Tailwaters of Rivers	U.S. Dept. of	9,720	8-10-78
Rod McCurry	Electron Microscopy Project	NSF	9,866	4-10-78
Larry Elliott	Clinical Experience in Medical Technology	CHE/AHES	7,739	4-1-78
Robert Hoyt	The Occurance & Distribution of Larval Smallmouth Buffalo in Rough River Lake, KY	Dept. of Labor	20,289	7-1-77
Larry Elliott	Clinical Experience in Medical Technology	CHE/AHES	6,589	4-1-77
Tom P. Coohill	The Dose Responses and Wavelength Dependence of Latent Tumor Virus Activation by Light in Mammalian Cells	Bureau of Radiological Health	98,000	6-1-76
Robert Hoyt	Population Dynamics & Catch Susceptibility of Smallmouth Buffalo in Rough River Reservoir	Ky. Fish & Wildlife Resources	13,900	7-1-75

Ogden College of Science, Technology and Health
Proposals Funded
January 1, 1975 - October 12, 1981

Chemistry

Faculty Member	Title	Agency	Amount Funded	Beginning Date
William G. Lloyd	Predictors of Plasticity in Bituminous Coals	DOE	$200,489	9-1-81
Laurence Boucher	New Catalyst for Coal Liquid Hydrotreating	DOE	78,784	9-1-81
John Reasoner	Analytical Pyrolysis of E. Shale	IMMR	33,462	7-1-81
William G. Lloyd	Activity of Oxidation Catalysts	Teledyne Water Pik	26,853	6-15-81
John Reasoner	Analytical Pyrolysis of Eastern Shale	IMMR	7,700	5-15-81
Larry Boucher	Catalysis in Conversion of Coal Related Products	IMMR	8,000	7-1-80
John Riley	Analysis of Western Kentucky Coals	IMMR	13,500	5-15-79
Laurence Boucher	IMMR Coal Research	IMMR	14,386	7-1-79
Laurence Boucher Norman L. Holy	Catalysis in Conversion of Coal and Coal Related Products	IMMR	12,372	7-1-79
John Riley	Materials Concerning the Analytical Chemistry of Coal	IMMR	3,400	5-15-79
John Reasoner	Organic Chemistry of Coal	IMMR	3,400	7-1-79
Norman L. Holy	Removal of Nitrogen from Coal-Derived Liquids	IMMR	5,803	5-15-79
Norman L. Holy	New Metallocenes	American Chemical Society	500	
Norman L. Holy	Identification of Nitrogen & Sulfur Compounds in Coal-Derived Liquids	IMMR	12,952	7-1-78
Norman L. Holy	New Metallocenes	Petroleum Research Fund	13,000	6-1-78

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Chemistry (Continued)

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Norman L. Holy	Identification of Nitrogen & Sulfur Compounds in Coal-Derived Liquids	IMMR	$ 15,000	7-1-77
Norman L. Holy	Removal of Nitrogen from Coal Liquefaction Products	IMMR	10,000	7-1-76
Norman L. Holy	Catalytic Hydrogenation of Coal with Soluble & Supported Transition Metal Complexes.	IMMR	4,058	7-1-75

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Geography & Geology

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Albert Petersen	Folklife Survey of Big South Nat. River	National Park	52,400	
Wayne Hoffman	Geographic Mapping Services	BRADD	5,000	6-30-79
Glen Conner	Development of Dissem. of Climatological Summaries of Area Development Districts	Dept. of Local Govern.	28,554	10-15-78
Glen Conner	Climatological Summaries of Non-Metro area Development Districts	Office of Local Govern.	23,320	
Reza Ahsan	Instructional Scientific Equipment Program	NSF	3,900	6-8-76
ɔn Seeger	Instructional Scientific Equipment Program	NSF	6,000	6-8-76

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Health & Safety

Faculty Member	Title	Agency	Amount Funded	Beginning Date
George Niva	State Traffic School, Driver Licensing	Ky. Dept. of Transportation	$322,823	10-1-81
Wayne Higgins	Risk Reduction Consultation and Technical Assistance	Ky. Dept. of Human Resources	1,400	7-1-81
Wayne Higgins	Risk Reduction Consultation and Technical Assistance	Ky. Dept. of Human Resources	2,415	4-1-81
David Dunn	Risk Reduction Consultation and Technical Assistance	B.G.-W.C. Health Department	4,100	1-1-81
David Dunn	Risk Reduction Workshop	B.G.-W.C. Health Department	5,975	1-1-81
William Hourigan	Hospital Cont. Ed.	W. Ky. Hospital Cont. Ed. Consortium	38,332	10-1-80
David Dunn	Health Attitudes Survey	Ky. Dept. of Human Resources	4,644	2-28-80
Ray Biggerstaff	Field Training for Com. Health Students	CHE/AHES	22,740	
William Hourigan	AHES Coordination	CHE	24,324	7-1-79
Ray Biggerstaff	Field Training for Com. AHES	CHE	26,400	9-1-79
Don Carter	Safety Training	Koehring Atomaster	2,750	
William Hourigan	AHES Project	CHE	23,459	7-1-78
David Dunn	Field Training for Community Health Students	AHES	26,400	7-1-78
David Dunn	Field Training for Community Health Students	AHES	29,112	9-1-77
George Niva	Motorcycle Rider Program	Motorcycle Safety Found.	1,200	4-21-77

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Health & Safety (Continued)

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Henry Baughman	Basic & Refresher Training Programs for Emergency Medical Services Personnel	Ky. Dept. of Human Resources	$ 4,500	9-1-76
William Hourigan	AHES Proposal - Admin. and Projected Costs	CHE/AHES	26,000	7-1-76
Ray Biggerstaff	Field Training for Community Health Students	CPHE	29,418	8-1-76
Ray Biggerstaff	Field Work Training for Community Health Students	CHE	2,677	3-15-76
George Niva	Motorcycle Safety Workshop	Motorcycle Safety Foundation & Ky. Dept. of Ed.	1,775	4-19-76
Henry Baughman	Program Administration Contract/Dept. for Human Resources	KY Dept. of Human Resources	5,140	11-1-75
Henry Baughman	Basic Program EMT-Ambulance	KY Dept. of Human Resources	7,500	10-15-75
Ray Biggerstaff	Field Training for Community Health Students	CHE/Health Science Section	23,416	8-15-75

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Industrial & Engineering Technology

Faculty Member	Title	Agency	Amount Funded	Beginning Date
John Russell	Energy Management Assistance Program	KY DOE	$ 31,875	12-31-81
John Russell	Energy Management Assistance Program	KY DOE	6,629	4-1-81
Ron Nichols	Thermostat Compliance Program	KY DOE	13,655	4-17-80
Arthur Bush	Improvement of Surveying Classes by Electronic Distance Measuring	NSF/ISEP	6,200	
John Russell	Energy Extension Program	KY DOE	44,900	
William Moore	An Interactive Computer System for Inc. Lab Training	NSF	24,993	4-1-80
John Russell	Ind. Hygiene Lab Equipment	NSF	12,700	10-1-79
Robert Baxter	Elect. Communications Laboratory	NSF	9,935	10-1-79
Henry Healey	MSFC Solar Heating and Cooling	NASA	15,000	7-2-79
Henry Healey	Energy Mang. Assistance	DOE-KY	44,997	
Pittman, Frank	Visual Arts Program (Crafts Workshop)	IPA Program Civil Ser. Comm.	13,388.75	7-1-79
Boyce Tate	Cooperative Agreement	Florence Hutch.	188	7-1-78
Frank Pittman	Crafts Workshop & Guitar Making	KY Arts Comm.	1,835	5-1-78
Frank Pittman	Crafts Workshop (Guitar)	NEA	4,800	5-1-78
Donald Rowe	Hydrology & Water Quality in the Central KY Karst (Phase II)	Office of Water Resour. Research	18,500	2-1-76
Crisp, Jeff	Continuous In-Service Teacher Ed. Project for Voc. Region 14	KY Dept. Voc.	450	12-19-74

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Mathematics & Computer Science

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Chester Davis Robert Bueker	CAUSE Proposal	NSF	$255,680	5-11-80
Randy York	Optimal Control for an Anti-Tank Weapon	Redstone Arsenal	9,900	6-1-78
Randy York Dan St. Clair	Optimal Control of an Anti-Tank Weapon	U.S. Army Missile Command	15,949	6-1-76

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Office of the Dean

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Lynn Greeley	LCADD Water/Wastewater Program	LCADD	$ 27,782	8-1-80

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Nursing

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Mary Hazzard	Develop. and Beg. Implementation of a Model for Baccalaureate Outreach Nursing Program	KNEP Mini-Grant CHE	$ 800	7-1-81
Mary Hazzard	Gerontological Nursing	CHE	796	12-15-80
Mary Hazzard	Expansion and Curr. Revision of Nursing Program	HEW	70,438.43	5-1-80
Mary Hazzard	Nursing Cap. Grant - Assoc.	HEW PHS	23,430	7-1-80
Mary Hazzard	Nursing Cap. Grant - Bacc.	HEW PHS	8,360	7-1-80
Mary Hazzard	Nursing Capitation Grant	HEW	22,172	7-1-79
Virginia Lehmenkuler	Expansion & Curriculum of Nursing Program	PHS	72,889	5-1-79
Virginia Lehmenkuler	Nursing Capitation Grant Program	HEW	23,226	7-1-78
Virginia Lehmenkuler	Extended Clinical Nursing Experience in Rural Communities	CHE	21,944	5-1-78
Virginia Lehmenkuler	Nursing Capitation Grant Program	Bur. of Health Manpower PHS	31,945	7-1-77
Virginia Lehmenkuler	Expansion & Curriculum Revision of Nursing Program	PHS	86,834	5-1-78
Virginia Lehmenkuler	Capitation Grant #4	CPHE	36,500	2-11-76

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Physics & Astronomy

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Karen Hackney	Second Epoch Observations for Spectral Variations (SUP)	NASA	$ 1,195	10-16-81
James Parks	Cooperative Research Program in Chemical Physics	Union Carbide	7,341	7-1-81
Jim Parks	KR 81 Dating of Old Ground Water	NAGRA	7,341	6-15-81
Martin Longmire	Simulation of Infrared Search & Trach. Perf.	Naval Research Lab	28,813	6-1-81
Martin Longmire	Infrared Search Set Develop.	Naval Research Lab	16,546	1-15-81
Martin Longmire	Simulation of Infrared Search	Office of Naval Research	12,123	1-15-81
Frank Six	Ray Tracing of Jovian Low Frequency Radiation	NASA	19,917	11-1-80
Jim Parks	Chemistry Physics Cooperative Research Program	Oak Ridge Nat. Lab	87,923	7-1-80
Martin Longmire	Simulation of Infrared Search and Track	Naval Research Lab	11,131	5-16-80
Karen Hackney	IUE Satellite #3	NASA	16,000	5-16-80
Karen Hackney	Second Epoch Observe for Spectral Variations in B.L. Lacertae Objects	NASA	9,000	5-12-79
Martin Longmire	JPA Optical Sciences Assignment Agre.	Naval Research Lab	22,289	1-1-79
Jim Parks	Cooperative Res. Prog. in Chem. Physics	Oak Ridge Nat. Lab	28,860	1-1-79
Thomas Coohill	Latent Tumor Virus Activation by Light in Mammalian Cells	HEW	In Biology	9-30-78

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Physics & Astronomy (Continued)

Faculty Member	Title	Agency	Amount Funded	Beginning Date
Dudley Bryant	Modern Electro-Optical Experiments	NSF	$ 8,100	2-24-78
Karen Hackney	Observation Ultraviolet Spectra of Radio Source OT-287	NASA	6,813	2-15-78
Thomas Bohuski	Continued Surveys for Emission Line Objects	NSF	5,995	
Tom P. Coohill	The Dose Responses and Wavelength Dependence of Latent Tumor Virus Activation by Light in Mammalian Cells	Bureau of Radiological Health	In Biology	6-1-76
Martin Longmire	Agreement with Naval Research Lab	Naval Research Lab	7,000	5-24-76
Martin Longmire	Contact with Naval Research	IPA Naval Research Laboratory	5,896	5-26-75
Jim Parks	Dev. of Sensitive Tech. for Detecting H_2O Molecules on Surfaces and in Bulk of Polyethylene	Elec. Power Res.	25,000	

6.2 Publications by Ogden College Faculty, 1980-81

Ahsan, S.R. 1980. Sugar cane and indentured labor in the West Indies. IN: Pacesetter Volume: Latin America, C. Kohn (Ed.).

Babich, M., T.P., Coohill, W. Taylor & W. Snipes. 1981. The effect of metabolic inhibitors on the large plaque effect. Photochem. Photobiol. 34:197-201

Bell, D.E. & R.D. Hoyt. 1981. Temporal and spatial dabundance and diversity of fishes in a Kentucky stream. Kentucky Acad. Sci. 41:35-44.

Boucher, L.J. & P. Rivera. 1980. Metal phthalocyanine complexes I, synthesis and properties of [Ru(CIPC) Py_2]. 4Py and [Ru(CIPC) $(PPh_3)_2$]. Inorg. Chem. 19:1816-1818.

Buckman, W.G. 1981. College Physics: Principles and Applications. D. Van Nostrand.

Byrne, F.P. 1980. The analytical chemist, his own worst enemy. IN: Impediments to Analysis, ASTM Spec. Tech. Publ. 708.

Conner, G. 1980. Wet and dry day probabilities in Kentucky. Kentucky Climate Ctr., Publ. No. 23:January, 1980.

Coohill, T.P., M. Babich, W. Taylor & W. Snipes. 1980. Herpes simples Virus produces larger plaques when assayed on ultraviolet irradiated DV-1 cells. Photochem. Photobiol. 32:97-98.

Coohill, T.P., M. Babich, W. Taylor & W. Snipes. 1980. A comparison of Herpes simplex virus plaque development rate after viral treatment with anti-DNA or anti-lipid agents. Biophysical J. 30:517-522.

Coohill, T.P. & E. Jacobson. 1981. Action spectra in mammalian cells. Invited review article--Photochemistry and Photobiology. Photochem. Photobiol. 33:941-945.

Coohill, T.P., S.P. Moore, D.J. Knauer, D. Fry, T.J. Eichenbrenner & L.E. Bockstahler. 1981. The Wavelength Dependence of Ultraviolet Radiation Activation of Latent Tumor Viruses from Mammalian Cells. HHS Publication FDA 81-8156, p.208-215.

Crawford, N.. 1980. The karst hydrogeology of the Cimberland Plateau Escarpment of Tennessee, Part III: Karst valley development in the Lost Cove Area, Franklin County, Tennessee. Ctr. Cave & Karst Studies, Western Kentucky University, Ser. 3, 21 p.

Detsch, R.M., F.D. Bryant & T.P. Coohill. 1980. The wavelength dependence. of Herpes simplex virus inactivation by ultraviolet radiation. Photochem. Photobiol. 32:173-176.

Detsch, R.M., F.D. Bryant, S.P. Moore & T.P. Coohill. 1980. The wavelength dependence of ultraviolet enhanced reactivation of Herpes simples virus inactivated by different wavelengths of UV radiation. Photochem. Photobiol. 32:271-272.

Dilamarter, R. & W. Hoffman. 1980. 1980 Field Trip Guide, Association of American Geographers.

Dilamarter, R. & J.M. Bingham. 1980. 1980 Corridors to Louisville, road log Nashville to Louisville segment, Association of American Geographers.

Dillard, G.E. 1980. Freshwater chlorophycean genera of the southeastern United States. I. Introduction and Volvocales (Polyblepharideceae). Trans. Kentucky Acad. 41:126-131.

Dillman, R.D., Jr., H.P. Bail, T.E. Holy, & N.L. Holy. 1980. Selective extraction of mercury (II) and evaluation of triphenylphosphoniumcyclopentadienylide as a phase transfer catalyst. Trans. Kentucky Acad. Sci., 41:147-149.

Elliott, L.P. 1981. Enumerating bacteria in river water and sewage effluent. Water & Eng. Management. April: 122-123.

Erskine, I. 1980. Laboratory Guide for Anatomy & Physiology. Kendall Hunt Publishing Co. 160 pp.

Farina, R.D. & R.G. Wilkins. 1980. Kinetics of interaction of some a- and b-monosaccharides with concanovalin A. Bioshimica et Biophysica Acta, 631:428-438.

Fennelly, A.J. 1980. Some effects of magnetic fields in spatially homogeneous universes with conductivity. Phys. Rev. D., 21:2107-2118.

Ferrell, B.R., H.E. Shadowen, W. Mason, T. Padgett & A.R. Stickley, Jr. 1980. Analysis of a Kentucky Blackbird-starling Roost Population from Birds Killed by PA-14 Treatment. The Kentucky Warbler, 56:72-77.

Fields, N. 1980. Preliminary geological evaluation of landfill sites in Taylor and Russell Counties, Kentucky. Report: Lake Cumberland Area Development District.

Gleason, L.N. & D.G. Hoffman. 1981. Meristogram analysis of a collection of Pomphorhynchus bulbocolli from south-central Kentucky. J. Parasitol. 67:133-134.

Greco, A.M., J.E. Winstead & F.R. Toman. 1980. Chlorophyll levels as ecotypic characters in box elder seedlings. Trans. Kentucky Acad. Sci. 41:144-146.

Greco, A.M., J.E. Winstead and F.R. Toman. 1980. Chlorophyll levels as ecotypic characters in box elder seedlings. Trans. Kentucky Acad. Sci. 41:144-146.

Hansen, M.V. and L.P. Elliott. 1980. New presumptive identification test for Clostridium perfringens: reverse DAMP test. J. Clin. Microbiol. 12:617-619.

Henrickson, C.H. & L.C. Byrd. 1980. Chemistry for the Health Professions. D. Van Nostrand.

Henrickson, C.H. & L.C. Byrd. 1980. Instructor's Manual for Chemistry for the Health Professions. D. Van Nostrand.

Hoffman, E.J., P. Mervine, J.R. McCurry & R.L. Luduena. 1980. Tubulins in detached axopodia. J. Cell Biol. 87:250a.

Hoffman, E.J., P. Mervine, J.R. McCurry & R.L. Luduena. 1980. Patterned microtubules and tubulins in detached heliozoan axopodia. J. Protozoology, 27:22A.

Hoffman, E.J., P. Mervine, J.R. McCurry & R.L. Luduena. 1980. Tubulins in detached axopodia. J. Cell Biol. 87:250a.

Holy, N.L. & R. Shalvoy. 1980. Hydrogenation with anthranilic acid anchored, polymer-bound nickel catalysts. J. Org. Chem., 45:1418.

Holy, N.L. 1980. Polymer-bound catalysts without phosphines. Chem. Tech.: June, 1980.

Houston, M.R., L.P. Elliott & T.S. Hamill. 1981. Abstract: The activation of 2-aminoanthracene by cell-free extracts of microorganisms. Absts. Ann. Meeting Amer. Soc. Microbiol. p. 130.

Hurt, V.K. and J.E. Winstead. 1980. Ecotypic differentiation of broom sedge in relation to strip mine spoil banks. Trans. Kentucky Acad. Sci. 41:132-137.

Hunter, N.W. 1980. The use of TV cassette tapes in freshman chemistry. J. College Sci. Teaching, 10:39-41.

Lloyd, W.G. and D.A. Davenport. 1980. Applying Thermodynamics to Fossil Fuels; Heats of Combustion from Elemental Compositions. J. Chem. Educ., 57:56.

Lloyd, W.G., H.E. Francis, M.R. Yewell, Jr., R.O. Kushida & V.D. Sankur. 1980. A Model for the Isothermal Plastometric Behavior of Coals. Amer. Chem. Soc. Divn. Fuel Chem. Preprints 25:no. 2:128.

Lloyd, W.G. 1981. Synfuels Technology Update. In A. Thumann, ed., The Emerging Synthetic Fuel Industry. Fairmont Press.

McDonough, J.M. & L.N. Gleason. 1981. Hisropathology in the Rainbow Darter, Etheostoma caeruleum, resulting from infections with the acanthocephalans, Pomphorhynchus bulbocolli and Acanthocephalus dirus. J. Parasitol. 67:403-309.

Mitchell, W.M., N.L. Holy, M.M. Jones, M.A. Basinger, & W.S. Vaughn. 1980. Effect of a water soluble phosphine on acute mercury poisoning. Toxicology & App. Pharmacology:June, 1980.

Moore, S.P. & T.P. Coohill. 1981. The effect of 8-methoxpsoralen on ultraviolet induction of SV40 from E-line cells. HHS Publication FDA 81-8156, p.216-225.

Moore, T. 1980. Unemployment in Kentucky counties: Spatial dimensions of the 1980 recession. Proc. Kentucky Acad. Sci.: November, 1980.

Moore, T. 1980. Resources in eastern Kentucky's economic development, 1800- 1840. Abstr. S.E. Division AAG:November, 1980.

Moore, W.R. 1980. Designing your power supply. Microcomputing, August, 1980.

Orser, J.A. & G.E. Dillard. 1980. Analysis of the periphyton of Sloan's Crossing Pond, Mammoth Cave National Park, Kentucky. Trans. Kentucky Acad. Sci. 41:60-69.

Overmann, G.J., R.D. Hoyt & G.A. Kindschi. 1980. The Larval Life History of the Crappies (Pomoxis) spp. Trans. Kentucky Acad. Sci. 441:105-115.

Petrakian, J.P., A.R. Cathers, J.E. Parks, R.A. MacRae, T.A. Callcott, & E.T. Arakawa. 1980. Optical properties of liquid tin between 0.62 and 3.7 eV. Phys. Rev. B, 21:3043.

Petersen, A. 1980. Field Trip Guide: Western Kentucky Coalfield, Association of American Geographers.

Riley, J.T. 1980. Tested demonstration - appetizing colloids. J. Chem. Educ., 57:153.

Shadowen, J.E., et al. 1980. Analysis of a Kentucky blackbird-starling roost population from birds killed by PA-14 treatment. The Kentucky Warbler, 56:72-77.

Shadowen, H.E. Mid-winter Bird Count, 1980-81. 1981. The Kentucky Warbler, 55:3-13.

Shirley, J.E. & J. Evans. 1980. Potential of interplanted soybean and grain sorghum plant parts to improve protein quality in ruminant diets. J. Dairy Sci., 63:138.

Winstead, J.E. 1980. Disconsolate observations at paper sessions or the unselling of information. Plt. Sci. Bull. 26:17-18.

York, R. 1980. Optimal control of an Air Defense interceptor. Proc. IEEE Southeastcon Conference:1980.

6.3 M.S. Degree Theses by Ogden College Students

AGRICULTURE

CARLISLE, Don F. M.S., 1973. Phenological and Cultural Studies of Common Dandelion (Taraxicum officinale Weber). E. Gray, W. Normand, W. Stroube.

DAVIS, William N. M.S., 1973. Yield, Crude Protein, and Crude Fiber Content of Three Forage Sorghum Cultivars During the Growing Season and After Frost. E. Gray, L. Brown, J. Skean.

HIERONYMUS, Steven. M.S., 1977. Comparison of Iron Supplements for the Prevention of Anemia in Young Pigs. G. Jones, L. Brown, R. Johnson.

JAMES, John H. M.S., 1973. Yield and Chemical Composition of Barley Silage. E. Gray, L. Brown, G. Jones.

JOHNSTON, Noel. M.S., 1977. Movement of Soil Nitrate Through a Pembroke Soil as Affected by Tillage Method and Time of Nitrogen Application. R. Johnson, E. Gray, W. Normand.

KITHCART, Russell E. M.S., 1978. Effects of Row Width and Seedling Rate on Yield and Other Agronomic Characteristics of Three Soybean Cultivars. R. Johnson, W. Normand, J. Worthington.

LACEFIELD, Garry. M.S., 1971. Distribution and Life Cycle of Nodding Thistle (Carduus nutans L.) in Kentucky. E. Gray, L. Brown, W. Stroube.

LOYD, Robert C. M.S., 1969. A Statistical Study of Sex Ratio Data from a Sample of Students at Western Kentucky University. E. Gray, L. Brown, W. Stroube.

MCCARTY, Glenn. M.S., 1970. Effects of Ensiling on the HCN Potential of Sorghum Plants. E. Gray, L. Brown, J. McGuire.

MOODY, Marlin D. M.S., 1976. Effects of Time of Application of Glyphosate in the Control of Johnson Grass. J. Worthington, L. Brown, W. Normand.

OAKES, John L. M.S., 1977. Evaluation of Herbicides for Suppression of Rhizome Growth from Johnson Grass in Corn and Soybeans. J. Worthington, R. Johnson, W. Normand.

ROGERS, Charles B. M.S., 1976. Evaluation of Glyphosate in No-Till Double Crop Soybeans Using Varying Volumes and Pressures. J. Worthington, L. Brown, W. Normand.

ROGERS, Sheryl A. M.S., 1980. Evaluation of BAS 9052 and BAS 9021 for Control of Johnson Grass in Soybeans. J. Worthington, R. Johnson, W. Normand.

SHIPE, Emerson. M.S., 1970. Reactions of Pollen-Pistil Combinations In Vitro and Their Relationships to Compatibility in Alfalfa. E. Gray, L. Brown, A. Yungbluth.

SHIRLEY, John E. M.S., 1970. Influence of Urea on the Fermentation Pattern and Nutritive Value of Corn Silage. L. Brown, W. Stroube, F. Toman.

SMEATHERS, Dan M. M.S., 1972. Hydrocyanic Acid Potential of Black Cherry Leaves. E. Gray, L. Brown, W. Normand.

STONE, Wilson L. M.S., 1978. Evaluation of Body Size Parameters in Elite Angus Cattle. G. Jones, R. Johnson, J. Worthington.

WALKER, Rebecca R. M.S., 1976. Iron Requirement of Pigs in Metal Farrowing Stalls. G. Jones, L. Brown, W. Normand.

BIOLOGY

ABDULRAHMAN, Faraq S. M.S., 1973. Chlorophyll Levels and Leaf Chloroplast Ultrastructure as Ecotypic Characters in Xanthium strumarium L. J. Winstead, G. Dillard, F. Toman.

ABEL, David G. M.S., 1972. Spatial Distribution and Temporal Occurrence of Rotifers in the Mainpool and Tailwater of Barren Lake, Kentucky. R. Prins, G. Dillard, R. Hoyt.

ARNOLD, Sally C. M.S., 1979. A Taxonomic and Physiographic Survey of Scirpus in Kentucky with Problem Species-Complex Analysis. E. Beal, G. Dillard, K. Nicely.

BELL, David E. M.S., 1977. Seasonal Abundance and Diversity of Fishes at Three Stations on the Middle Fork of Drake's Creek, Warren and Allen Counties, Kentucky. R. Hoyt, G. Dillard, R. Prins.

BLAINE, Linda. M.S., 1973. The Effectiveness of the Nitrate Ion Selective Electrode as a Quantitative Method for Low Levels of Nitrate. F. Toman, E. Beal, D. Hartman.

BOUGHER, Christine. M.S., 1973. A Phytosociological Study of a Relict Hardwood Forest in Barren County, Kentucky. J. Winstead, M. Houston, K. Nicely.

BUCKNER, Richard L. M.S., 1972. A Study of the Seasonal Incidence of the Arthropod and Helminth Parasites of the Prairie Vole, Microtus ochrogaster, and the Wood Mouse, Peromyscus leucopus, in an Area of Warren County, Kentucky. L. Gleason, R. Hoyt, K. Nicely.

CARLUCCI, Richard. M.S., 1975. Lethality of and Elicitation of Protective Antibody by Vibrio parahaemolyticus ATCC 17803. J. Skean. L. Elliott, S. Ford.

COBB, Bobby E. M.S., 1978. Synergistic Effects of Wavelengths of Ultraviolet Radiation on Capacity in a Mammalian Cell-Virus System In Vitro. T. Coohill, F. Morgado, T. Yungbluth.

COLLINS, W. Ernest. M.S., 1968. Regeneration of the Tentacles and Eyes of the Marine Snail, Ilyanassa obsoleta Stimpson. A. Applegate, D. Bailey, J. Parker.

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DAHL, Thomas E. M.S., 1978. An Analysis of the Heavy Metal Content. of the Scales of Several Fishes in Southwestern Kentucky. R. Hoyt, G. Dillard, R. Prins.

DANIEL, Larry W. M.S., 1975. The Metabolism of Tartaric Acid by Aspergillus ficuum. L. Elliott, M. Houston, L. Lockwood.

DEL TITO, Benjamin J. M.S., 1980. A Comparison of Vitamin A_1 and A_2 Levels and the Role of Beta-Carotene and Lutein in the Synthesis of Vitamin A in Freshwater Fishes. R. Hoyt, L. Gleason, F. Toman.

DIANIS, Sharon L. M.S., 1976. Electrophoretic Heterogeniety of Nicotinamide Adenine Dinucleotide Phosphate-Dependent 5-Ketogluconate Reductase of Gluconobacter suboxydans. M. Houston, D. Hartman, L. Lockwood.

DIBBLE, John T. M.S., 1974. The Production of Epoxysuccinic Acid by Fungi. L. Elliott, D. Hartman, L. Lockwood.

DUCKWORTH, Diana L. M.S., 1980. Interpopulational and Species Comparisons of the Genus Liquidambar. J. Winstead, M. Houston, K. Nicely.

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6.4 Academic Support Service Personnel

OGDEN COLLEGE OF SCIENCE, TECHNOLOGY AND HEALTH

Academic Support

Service Personnel

The academic service personnel play an important role in a hardware-oriented college by providing assistance and support for faculty members to improve the instruction, research and public service activities in the College.

Academic Support Personnel perform the following types of tasks:

- Fabricate experimental equipment to be used for laboratory instruction and demonstration
- Build instruments and equipment required on a research project
- Repair and maintain laboratory equipment and instrumentation with an original cost of more than $2,000,000
- Maintain more than 20,000 items in glassware and chemical store rooms to support laboratory instruction
- Provide EPA laboratory testing and analysis services on a fee basis for local cities and school systems
- Provide laboratory analyses on a fee basis of drinking water samples for individuals, governmental agencies and businesses
- Simulate astronomical conditions in the Planetarium for laboratory instruction
- Present instructional programs in the planetarium for over 15,000 students from local schools
- Produce slides and art work for research publications and presentation of scientific papers at state, national and international meetings
- Provide facilities for the agriculture community to hold events in the Ag Exposition Center

- Repair and calibrate electronic instruments for accurate measurements in laboratory instruction
- Operate Electron Microscope, Mass Spectrometer and other specialized major equipment for use in instruction and research

Some public service activities are set up on a fee basis to allow the University to recover the cost of operating expenses while providing a needed and valuable service to local cities, school systems, local industries and private citizens. For example, the Water Quality Lab provides laboratory analyses and testing for more than 15 industrial plants and businesses, 10 local cities, 8 school systems and dozens of private citizens. The income generated offsets the operating expense as well as providing a valuable learning experience for students in Chemistry and in Environmental Programs.

During the fiscal year 1981-82 the net cost of the service personnel for OCSTH was 2.2% of the College budget.

OCSTH
Academic Support
Service Personnel
Fiscal 1981-82

Position	Primary Service Area	% Non-Teaching
Supervisor - Instrument Shop	College	100
Instrument Maker	College	100
Electronics Engineer	College	100
Planetarium Technician	College	100
Manager - Water Quality Lab	College	100
Lab Technician - Water Quality Lab	College	100
Electro-Mechanical Technician	Engineering Technology	100
Electronic Technician	Engineering Technology	100
Director - Ag Exposition Center	Agriculture	100
Lab Supplies Specialist	Chemistry	100
Electron Microscope Technician	Biology	50
Lab Technician	Biology	100
Director - Planetarium	Physics and Astronomy	50
Secretary - Planetarium	Physics and Astronomy	100

Net Cost of Service Personnel = 2.2% of OCSTH Budget for 1981-82