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Sue Tirotta

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REGULAR FACULTY SENATE MEETING Central Washington University

October 25, 1989

Presiding Officer: Beverly Heckart Recording Secretary: Sue Tirotta

Meeting was called to order at 3:10 p.m.

ROLL CALL

Senators: All Senators or their Alternates were present except Bergman, Darda and

Jefferies.

Visitors: Robert Edington, Robert Smith, Carolyn Wells and Barney Erickson.

CHANGES TO AGENDA

On page 3, under Fees/Option B, change Total Revenue from \$2,235,830.00 to \$1,235,830.00

APPROVAL OF MINUTES

*MOTION NO. 2704 Connie Roberts moved and Karl Cloninger seconded a motion to approve the minutes of the October 11, 1989 meeting as distributed. Motion passed.

COMMUNICATIONS None

REPORTS

1. CHAIR

-Chair Heckart introduced Robert Smith, visiting head from the Northwest Association of Schools and Colleges (NASC) accredition team. She reminded the Senate that copies of the 1989 "C.W.U. Accreditation Self-Study" are available for review at the Library Reference Desk.

for review at the Library Reference Desk.
-Chair Heckart introduced ASCWU/BOD member Arnie Norem, who replaces Robert

Gossard as a student Senator.

*MOTION NO. 2705 Connie Roberts moved and Ed Golden seconded a motion to 1) ratify Russell Hansen, Sociology, as a member of the 1989-90 Senate Code Committee and 2) ratify William Schmidt, Library, as a replacement for Peter Saunders, Economics, on the 1989-90 Senate Personnel Committee. Motion passed.

-In order to improve the faculty's familiarity with the campus, Dick Thompson, Director of Governmental Relations, is arranging faculty tours of C.W.U. similar to those conducted for visiting legislators. The tours include the Chimp Lab, the Industrial and Engineering Technology building, Geographic Information Systems (GIS) Lab, the Sarah Spurgeon Art Gallery, the Hertz Music building and other areas of interest; faculty should notify Chair Heckart immediately if they would be interested in participating.

-In MOTION NO. 2701 passed at its October 11, 1989 meeting, the Faculty Senate voted to create a new Distinguished University Professor award called the "Outstanding Teacher Award" for junior faculty members. The Provost and Vice President for Academic Affairs is not interested in creating such a new award

until the Committee on Faculty Development completes its report. Therefore, this item will not be presented to the Board of Trustees.

-It has been proposed that the duties and title of the Dean of Graduate Studies and Research be expanded. The Provost proposes the new title of "Assistant Provost for Faculty Professional Development and Dean of Graduate Studies and Research." The job description for the expanded position would add "the encouragement and facilitating of faculty professional development" to the current functions of "the encouragement of research and scholarly activity, funded research and graduate programs." Chair Heckart reported that in the Academic Planning Group meeting of October 23 she protested the proposed title change. Provost Edington reported that the Graduate Council has reviewed the proposed title and position description; a list of Search Committee members and the position description will be distributed to all faculty in about a week. The Provost added that the Search Committee for the Dean of the College of Letters, Arts and Sciences has not yet been formed.

-Chair Heckart remarked that her byline should have been added to the Faculty Senate Notes section of the October 20 "Campus Bulletin" in order to make it clear that the position represented was her own and not necessarily that of the Faculty Senate. Faculty guest writers are welcome to contribute to the Faculty

Senate Notes.

CHAIR, continued -The "Camp Field" Academic Planning Group will meet at Hidden Valley Ranch on November 2, 3 and 4. The faculty members in this group are Kathleen Easter (Art), Ken Hammond (Geography), Jim Nylander (HPER), Connie Roberts (BEAM), Phil Backlund (Communication), Ed Golden (Business Administration), Dale LeFevre (Education) and Beverly Heckart (History). Faculty are encouraged to contact these people for information and make suggestions for the plan.

President Donald Garrity reported that the Carnegie Corporation has taken an interest in how teaching in the public schools is perceived and how teacher preparation is accomplished by higher education. Five states, including Washington, were to be chosen for their study. Project staffer Cal Frazier, University of Denver, called on President Garrity, chair of the Council of Presidents (COP), to seek out the leadership of higher education presidents around the state. A Steering Committee was subsequently formed, with Kenneth Mortimer (WWU) and Donald Garrity (CWU) representing the public institutions and William Reike (Pacific Lutheran University) and David Spangler (St. Martin's College) representing the private institutions. As a result of the Steering Committee's efforts, a "President's Forum on Teaching as a Profession" will take place next week, beginning with a dinner hosted by Governor Gardner.

3. ACADEMIC AFFAIRS COMMITTEE None

BUDGET COMMITTEE

Barry Donahue reported that the Budget Committee will bring a proposal for distribution of the January 1, 1990 faculty salary increase to the November 15, 1989 Faculty Senate meeting.

CODE COMMITTEE None

CURRICULUM COMMITTEE

*MOTION NO. 2706 Warren Street moved approval of University Curriculum Committee pages 1018-1019 with the following change: -Page 1019: under B.S./Biology Major Program Change Change OR Approved electives with advisement to total at least 43 credits, 30 credits of which must be upper-division; and two minors approved by the department chairman or the Teacher Preparation Program....43 or 83

Total 60 or 100

to read

OR for the Biology Education option,
Approved electives with advisement to total at least 43 credits, 30 credits of which must be upper-division; and at least two additional minors approved by the department chairman and the Teacher Preparation Program....43 or 83 Total 60 or 100

Motion passed.

PAGE

1018-19 B.S./Biology Major Program Change

7. PERSONNEL COMMITTEE

Karl Cloninger reported that the Senate Personnel Committee completed its charge to review the Draft Misconduct Policy distributed by Dale Comstock, Dean of Graduate Studies/Research, and submitted it to the Senate Executive Committee. Chair Heckart complimented the committee for the work that helped her make a useful contribution to discussions in the Academic Planning Group.

OLD BUSINESS

-DISTINGUISHED PROFESSOR AWARDS

*MOTION NO. 2707 Owen Pratz moved and Connie Roberts seconded a motion to remove Motion No. 2702 (10/11/89) from the table. Motion passed.

*MOTION NO. 2702 The Faculty Senate recommends that the amount of the three Distinguished Professor Awards -- Teaching; Research and Artistic Accomplishment; Public Service -- be increased from \$1,000 to \$1,500.

Chair Heckart noted that Provost Edington has no objection to increasing the amount of the Distinguished University Professor Awards from \$1000 to \$1500 each, as this increase represents only a small fraction of the Provost's budget. Question was called for on Motion No. 2702; motion passed.

NEW BUSINESS

-1989-90 SUMMER SCHOOL

Barney Erickson, Director of Summer Session, delivered a recent history of summer school funding. He stressed that the status of summer session funding by the legislature has been uncertain from year to year, with partial state funding in 1987, state support in 1988 and self-support in 1989. He is currently planning a self-supporting summer session for 1990, and by direction of the legislature, he must enter negotiations with other state institutions to try to achieve among them some uniformity of fees. Dr. Erickson reported that there was some dissatisfaction among students concerning last year's summer school fees, especially among post-baccalaureate non-master's candidates; but enrollment among undergraduates and master's students was high, and class cancellations were about average. The following options for fee structure and faculty salary plans were presented for discussion and a straw vote by the Senate in order to give Dr. Erickson a sense of faculty sentiments. It should be noted that "Fee Option D" and "Salary Option A" were used during the 1988-89 self-support summer session, and final revenues virtually balanced final expenses.

* * *

FEES: Expected revenues from fees are based on the curricula and enrollments of summer 1989: 15,744 undergraduates credits; 4,823 post-baccalaureate non-masters credits; 3,192 masters credits. Options A-D and Option F do NOT include credit "lids;" Option E includes a credit "lid" as stated.

Option A: \$50/credit undergraduates; \$55/credit post-baccalaureate non-master's; \$65/credit master's: TOTAL REVENUE: \$1,259,945.00

Option B: \$\$50/credit undergraduates and post-baccalaureate non-master's; \$65/credit master's: TOTAL REVENUE: \$1,235,830.00

Option C: \$45/credit undergraduates; \$55/credit post-baccalaureate non-master's; \$65/credit master's: TOTAL REVENUE: \$1,181,225.00

Option D: \$42/credit undergraduates; \$60/credit all post-baccalaureate: TOTAL REVENUE: \$1,150,000.00

Option E: (Regular Academic Year's Fees with Credit Lid) \$51/credit undergraduates to a maximum of \$510 up to 18 credits; \$82/credit all post-baccalaureate to a maximum of \$820 up to 18 credits: TOTAL REVENUE: \$1,134,533.00

Option F: (Regular Academic Year's Fees without Credit Lid) \$51/credit undergraduates; \$82/credit all post-baccalaureate: TOTAL REVENUE: c. \$1,300,000

* * *

SALARIES: Expected costs are based on curricula and enrollments of summer 1989: 578.5 full professor credit hours; 277 associate professor credit hours; 201 assistant professor credit hours; 166.5 adjunct credit hours. They include the pro-ratings that occurred. Overhead costs include: summer school office salary and supplies, department chair supplements, summer school advertising, graduate assistant stipends and building bond payments.

Option A: Faculty salaries of 2/9 of academic year contract as provided by the Faculty Code, section 15.30.

Total salaries and benefits: \$985,000.00; 25% overhead: \$246,250.00;

TOTAL COST: \$1,231,250.00

Option B: Faculty salaries based on credit hours taught by professional rank. Full professors = \$750/credit; Associate professors = \$650/credit; Assistant professors = \$550/credit; Adjuncts = \$400/credit

Total salaries and benefits: \$925,557.75; 25% overhead: \$1,156,947.19;

TOTAL COST: \$1,156,947.19

Option C: Faculty salaries based on flat rate per credit hour taught for ranked professors and for adjuncts. All ranks = \$650/credit; Adjuncts = \$400/credit.

Total salaries and benefits: \$881,390.25; 25% overhead: \$220,347,56;

TOTAL COST: \$1,101,737.81

* * *

In answer to Senators' questions, Dr. Erickson stated that 1) Revenues would be significantly decreased if students were charged for the type (i.e., Graduate or Undergraduate) of course taken rather than for the kind of students they are; 2) 60% of summer school students take 10 credits or less; 3) The structure of summer school is totally different from that of Continuing Education, as most Continuing Education

NEW BUSINESS, continued 1989-90 SUMMER SCHOOL, continued

students never take a total of more than 10 credits; 4) Although off-campus enrollments for summer school were much higher than in the past, on-campus enrollment figures fell, with many pro-rated and cancelled classes; 5) Western Washington University cut its summer curriculum by 20% last year and charged \$60/credit non-master's with a lid of \$600 and \$100/credit master's with a lid of \$600 (same rates as University of Washington), and they finished the quarter "in the red"; 6) Eastern Washington University charged \$59/credit for all students last summer and was able to cover faculty salaries and benefits; 7) C.W.U. may become less competitive with private schools for summer students due to its higher fees for self-support. Carolyn Wells, Registrar, added that students seemed to take fewer credits last summer because of the high fees.

Ed Golden, Business Administration (Lynnwood), read a statement in support of a "marginal contribution approach" to summer session planning. He explained that such an approach would be "demand-driven" rather than "resource-driven" and would potentially generate a profit for summer school. Dr. Golden postulated that since demand for off-campus courses is exceptionally high, the profits that the off-campus programs can generate could be used to offset the lower demand that may be present on campus. He added that, since 1989-90 summer school will be a self-support session, there are no enrollment caps, and this will give C.W.U. an opportunity to serve more students overall without exceeding the enrollment cap set by the state.

Ken Hammond, Geography, read a statement from Dan Ramsdell, History, in support of "Fee Option E" and "Salary Option C;" Dr. Hammond noted that internships and individual studies were not taken into account as income in the proposed figures. Ken Gamon, Math, reported the Math department's support for "Salary Option A." Concern was expressed about the perceived value of summer session classes if the fee structure were lowered; other Senators added their support for a fee structure similar or identical to that used during the regular academic year.

Chair Heckart reminded the Senate before the vote that the Fee Structure for which they vote should have Total Revenues which would cover their preferred Salary Option.

A straw vote was held on Salary Options with results as follows: Option A = 18; Option B = 9; Option C = 2.

A straw vote was held on Fee Structures with results as follows: Option F = 10; Option E = 5; Option A = 3; Option B = 3; Option C = 2; Option D = 1.

A straw vote was held to show support of Ed Golden's plan to run summer school like a business; 10 Senators voted in favor of such a plan.

ADJO URNMENT

The meeting was adjourned at 4:45 p.m.

✓ Ken GAMON Stephen HINTHORNE ✓ Donald GARRITY Robert EDINGTON Ken HAMMOND Morris UEBELACKER ✓ Beverly HECKART Larry LOWTHER Don HENDRIXSON Stephen JEFFERIES Scott RICARDO Nancy LESTER Kelton KNIGHT Victor MARX William SCHMIDT ✓ Timothy YOUNG Teresa MARTIN Charles HAWKINS Charles McGEHEE Wells McINELLY Don WISE Patrick McLAUGHLIN Patrick OWENS Deborah MEDLAR Dick WASSON Arnie NOREM Gary PARSON George KESLING John PICKETT Andrew SPENCER Owen PRATZ Kenneth MERRELL Connie ROBERTS Ken HARSHA Fric ROTH Hal OTT

Eric ROTH Hal OTT

Stephen SMITH Richard MACK

Willard SPERRY Robert MITCHELL

Warren STREET Max ZWANZIGER

Alan TAYLOR Roger GARRETT

Randall WALLACE

_____Randall WALLACE ______Jack MCPHERSON

Robert JACOBS
Norman WOLFORD

Tom YOUNGBLOOD

IMPORTANT INFORMATION AND ACTION ON SUMMER SCHOOL UNDER NEW BUSINESS AND ON PAGE 3. PLEASE DISCUSS WITH YOUR DEPARTMENTAL COLLEAGUES INFORMALLY BEFORE THE MEETING!!

FACULTY SENATE REGULAR MEETING
3:10 p.m., Wednesday, October 25, 1989
SUB 204-205

- I. ROLL CALL
- II. CHANGES TO AGENDA
- III. APPROVAL OF MINUTES October 11, 1989
- IV. COMMUNICATIONS
- V. REPORTS
 - 1. Chair
 -Motion to ratify Russell Hansen, Sociology, as a member of the Senate Code Committee
 -Motion to replace Peter Saunders, Economics, on the Senate Personnel Committee with Bill Schmidt, Library
 -Ad Hoc Committee on Student Evaluation of Teaching -Campus Information Tours for Faculty
 -Outstanding Teacher Award
 -Search Committees
 - 2. President
 - 3. Academic Affairs Committee
 - 4. Budget Committee
 - 5. Code Committee
 - 6. Curriculum Committee
 -UCC Pages 1018-1019 (with attached change)
 - 7. Personnel Committee
- VI. OLD BUSINESS
 -Distinguished Professor Awards: Motion to remove Motion
 No. 2702 from table (see attached motion)
- VII. NEW BUSINESS
 -Summer School (Barney Erickson)
- VIII. ADJOURNMENT
- *** NEXT REGULAR FACULTY SENATE MEETING: November 15, 1989 ***

Page 2

CURRICULUM COMMITTEE

One change on UCC Page 1019: under B.S./Biology Major Program Change --

Change

OR

Approved electives with advisement to total at least 43 credits, 30 credits of which must be upper-division; and two minors approved by the department chairman or the Teacher Preparation Program....43 or 83

Total 60 or 100

to read

OR for the Biology Education option,
Approved electives with advisement to total at least 43 credits, 30 credits of which must be upper-division; and at least two additional minors approved by the department chairman and the Teacher Preparation Program....43 or 83

Total 60 or 100

* * * * * * * * * *

OLD BUSINESS - DISTINGUISHED PROFESSOR AWARDS

MOTION:

Remove Motion No. 2702 (10/11/89) from table:
MOTION NO. 2702: The Faculty Senate recommends that the amount of the three Distinguished Professor Awards -Teaching; Research and Artistic Accomplishment; Public Service -- be increased from \$1,000 to \$1,500.

[Note: This extra \$1,500 represents .0007 of the Provost's budget.]

Barney Erickson, summer school director, is currently planning a self-supporting summer school session for 1990. The proposals below are not firm because Barney, by direction of the legislature, must enter negotiations with other state institutions to try to acheive among them some uniformity of fees. The material below is being presented as information; action shall occur in the Senate as a way of providing Barney with some sense of faculty sentiments.

We shall take straw votes on proposed fee structures and on proposed salary plans. In considering your votes, please remember that the fee structure is intimately related to the salary structure.

* * * * * * * * * * * * * *

Expected revenues from fees are based on the curricula and enroilments of summer 1989: 15,744 undergraduate credits; 4,823 post-baccalaureate non-masters credits; 3,192 masters credits

OPTION A	OPTION B	OPTION C	OPTION D	OPTION E
\$50/credit undergraduates	\$50/credit undergraduates and post-baccalaureate non-masters	\$45/credit undergraduates	\$42/credit undergraduates	
\$55/credit post-bacca- laureate non-masters		\$55/credit post-bacca- laureate non-masters		
\$65/credit masters	\$65/credit masters	\$65/credit masters	\$60/credit all post- baccalaureate	Regular academic year's fees
TOTAL REVENUE: \$1,259,945.00	TOTAL REVENUE: \$2,235,830.00	TOTAL REVENUE: \$1,181,225.00	TOTAL REVENUE: \$1,150,000.00	TOTAL REVENUE: \$1,134,533.00
	* * * * *	* * * * * *		

Expected costs are based on curricula and enrollments of summer 1989: 578.5 full professor credit hours; Salaries: 277 associate professor credit hours; 201 assistant professor credit hours; 166.5 adjunct credit hours. They include the pro-ratings that occurred. Overhead costs include: summer school office salary and supplies, department chair supplements, summer school advertising, graduate assistant stipends, building bond payments.

OPTION A: Faculty salaries of 2/9 of academic year contract as provided by the Faculty Code, section 15.30

Total salaries and benefits: \$ 985,000.00 25% overhead: 246,250.00 TOTAL COST \$1,231,250.00

OPTION B: Faculty salaries based on credit hours taught by professional rank. Full professors = \$750/credit; Associate professors = \$650/credit; Assistant professors = \$550/credit; Adjuncts = \$400/credit

Total salaries and benefits: \$ 925,557.75 25% overhead 231,389.44 TOTAL COST \$1,156,947.19

Faculty salaries based on flat rate per credit hour taught for ranked professors and for adjuncts. All ranks = \$650/credit; Adjuncts = \$400/credit

> Total salaries and benefits \$ 881,390.25 overhead 220.347.56 TOTAL COST \$1,101,737.81

VISITOR SIGN-IN SHEET

Box Elaston
D&B Blogton ROBERT B SMITH (NW ABSON.)
Carolyn Welle .
,

S E C T I O N 15.00 - 15.99

SUMMER SESSION

15.10 <u>Summer Session</u>

The deans shall recommend the appointment of the faculty members who teach during the summer session. Appointments shall be subject to approval of the provost and vice president for academic affairs, the president and Board of Trustees, within the budgetary limitations allowed.

15.20 Summer School Appointment

Except as provided in Section 4.85C, appointment to teach in summer school shall be decided on the basis of the program requirements of the university. Whenever any department has more regular faculty members wishing to teach for the summer than there are positions to be filled by members of that department, recommendations for appointment by the department chair and the deans to the dean of extended university programs and the provost and vice president for academic affairs shall be made according to the following provisions and restrictions:

- A. Available funds.
- B. Program requirements. No faculty member has the right to demand a teaching assignment in the summer nor does the university have the right to demand the services of any faculty member, except those on twelve (12) month or special contracts.
- C. As long as basic program requirements of the university are met, a plan for rotation of summer school appointments within a department may be recommended by the department. The plan shall be completed far enough in advance to allow for review and program development. One copy of the department minutes of each department meeting establishing such recommended policies shall be filed with the dean of extended university programs, the appropriate dean and the provost and vice president for academic affairs. Such rotation plans are subject to the approval of the appropriate dean and provost and vice president for academic affairs.
- D. Load calculations shall be made in accordance with those applicable to the regular academic year per section 7.20 of this Faculty Code. [BT Motion 6023, 9/29/86]
- E. In the selection of summer school faculty, preference shall be given to Central Washington University faculty who apply over outside personnel of similar training and experience.
- F. Faculty members who believe either that they have been discriminated against in the matter of summer school appointment, or that their department's rotation system has not been used equitably, may use the grievance procedures contained in this code.

15.30 <u>Summer Salaries</u>

Unless otherwise provided in this code, the salaries for regular university faculty teaching at least twelve credit hours during the full summer session, in addition to their regular academic contract year, shall be 2/9ths of the salary for the previous academic contract year. Salary shall be prorated for a partial load based on credit hours taught. [BT Motion 5932, 9/20/85]

15.40 Applicability of Code to Summer Session [BT Motion 6023, 9/29/86]

The provisions of this Faculty Code shall apply to summer session unless summer session funding circumstances warrant exceptions. Such exceptions must be reviewed by the Faculty Senate.

Date: October 23, 1989

To: Beverly Heckart, Chair

Faculty Senate

From: Ed Golden

Re: Summer Session

Last Summer was a dissapointing summer session both financilly for the University, for faculty who wanted to teach a full load, and for students who wanted more course offerings. Barney Erickson's proposal for Summer 1990 appears to be Summer 1989 repeated.

First using 1989's enrollment fugures for the 1990 forecast is fallacious. Initially, Summer 1989 was supposed to be state funded so the enrollments were capped to be within that budget. Summer 1990 will definitely be self-support so that enrollment should be dictated by demand, rather than by the resources available.

By using a marginal contribution approach, CWU has an opportunity to make money off of summer session. Here's the way it works:

The only variable cost for offering a course is faculty salary. If we assume an average \$8,000 salary, including fringes, and a tuition cost the same as it is now (\$51.00), the breakeven point for offering a class \$8,000 divided by \$51 X 12 or an average of approximately 13 students. For every student above 13, the total tuition would be a contribution towards overhead and profit. In the case of adjunct faculty, where the cost would be \$6000, if they taught a full load, the break-even point would be 10 students.

The fixed costs allocated to summer session should only consist of those costs incurred by having a summer session. Costs that would be incurred whether we have a summer session or not should not be included because these are sunk costs.

In regards to the demand factor, there is a difference between on-campus and off-campus students. Off-campus students regard summer session as just another quarter. If the courses are offered, they will take them. Last summer I averaged well over 35 students in my classes and had waiting lists. In other words, my classes would have more than covered their costs and contributed some \$3600 to overhead and profit. In discussing potential enrollments at the Lynnwood Center with Bob Benton, he conservatively estimated that we could have generated at least 2500 sch's, instead of the 1800 we did generate.

The profits that the off-campus programs can generate can be used to offset the lower demand that may be present on campus. In addition, any faculty that would prefer to teach off-campus

during the summer would probably find little difficulty in filling their classes.

Since this will be a self-support session, there are no enrollment caps. This will give us an opportunity to serve more students overall, without exceeding the enrollment cap set by the state. Further, by offering those courses in greatest demand, it will not only insure us of a profitable summer for the university, but will also take pressure off of those same courses during the rest of the year. It will also afford all of the faculty who desire to teach a full load to be able to do so. The revenues in excess of cost can be used to fund those classes which do not meet the minimums, or help augment the university budget the rest of the year, or both.

This is a proposal where everyone wins. Repeating what we did last year will only result in everyone losing.

CURRICULUM PROPOSALS APPROVED BY THE UNIVERSITY CURRICULUM COMMITTEE AND FORWARDED TO THE SENATE

BIOLOGICAL SCIENCES PROGRAM CHANGE AS IT APPEARS

BACHELOR OF SCIENCE BIOLOGY MAJOR

The Bachelor of Science major offers the opportunity to prepare for immediate entrance into the student's chosen profession, including teaching, while not foreclosing the possibility of graduate work. The specific program is to be designed by the student and the appropriate departmental advisor, and must be submitted for approval to the Department of Biological Sciences at least one academic year preceding graduation. A specialization may be stated on the transcript upon recommendation of the student's departmental advisor and approval by the department.

A maximum of ten credits (no more than five from a single discipline) from the approved list of natural science Breadth Requirements will be allowed to fulfill the natural science requirements as well as the requirements of this major.

The general requirements for the Bachelor of Science are as follows:

Credits

Many specialized options are possible by proper selection of electives. The following are examples of these options.

PROPOSED

BACHELOR OF SCIENCE BIOLOGY MAJOR

The Bachelor of Science major offers the opportunity to prepare for immediate entrance into the student's chosen profession, including teaching, while not foreclosing the possibilitity of graduate work. The specific program is to be designed by the student and the appropriate departmental advisor, and must be submitted for approval to the Department of Biological Sciences at least one academic year preceding graduation. A specialization may be stated on the transcript upon recommendation of the student's departmental advisor and approval by the department.

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The general requirements for the Bachelor of Science are as follows:

CURRICULUM PROPOSALS APPROVED BY THE UNIVERSITY CURRICULUM COMMITTEE AND FORWARDED TO THE SENATE

BIOLOGICAL SCIENCES CONTINUED

•	Credits
BISC *110, Basic Biology	2
BISC 111, Plant Biology	5
BISC 112. Animal Biology	5
BISC 313, Cellular Biology	5
	17

Approved electives with advisement to total 83 credits; 30 credits of which must be upper-division and no more than 75 credits collectively may be from Biological Sciences, Botany, Zoology.

OR

Approved electives with advisement to total at least 43 credits,

30 credits of which must be upper-division; and two minors approved by the
department chairman or the Teacher Preparation Program.......43 or 83

Total 60 or 100

Many specialized options are possible by proper selection of electives. Areas of specialization that can be completed through the Department include:

AQUATIC BIOLOGY
BIOLOGY EDUCATION
ENVIRONMENTAL/PUBLIC HEALTH BIOLOGY
HORTICULTURE
HEDICAL TECHNOLOGY
HICROBIOLOGY
WILDLIFE MANAGEMENT

For further information about these specialties contact the Department of Biological Sciences.

Microbiology students are eligible to become registered microbiologists (National Registry of Microbiologists, American Academy of Microbiology), after graduation and completion of the following academic requirements, passing the registry examinations, and completing one year of fulltime working experience as a microbiologist.

Academic Requirements for National Registry of Microbiologists:

Riological Science	redits
Biological Sciences	45
BISC 370, 411, 413, 414, 445, 4451.,	
BOT 463, ZOOL 380, 381)	
Chemistry	24
Physics	5
Math 163.1, Pre-Calculus Mathematics I	5_
ì	79