

College of Arts & Sciences Faculty Meeting
Thursday, December 9, 2010
3:30 p.m., City Union - Room to be posted

3:30 p.m. Hot cider and cookies
3:45 p.m. Meeting begins

AGENDA

- Item I. Approval of minutes from the Spring Faculty Meeting on April 22, 2010. (See appendix).
- Item II. Opening comments.
 - Appointing of Parliamentarian
- Item III. Recommendation from the College Curriculum & Advising Committee to approve Essential Studies courses listed for Area E, Historical Studies and Area H, Ethnicity and Gender. (See appendix). Supporting materials are available for review in the Dean's Office.
- Item IV. Recommendation from the College Curriculum & Advising Committee to approve the proposed change to the major in Anthropology.
- Item V. Recommendation from the College Curriculum Committee to approve the proposed changes to the major and minor in Communication Studies.
- Item VI. Recommendation from the College Curriculum & Advising Committee to approve the proposed new minor in Computational Biology and Bioinformatics
- Item VII. Recommendation from the College Curriculum & Advising Committee to approve the proposed new minor in Global Security Studies.
- Item VIII. Recommendation from the College Curriculum & Advising Committee to approve the proposed title change for the minor in Human Rights Human Diversity.
- Item IX. Recommendation from the College Curriculum & Advising Committee to approve the proposed new major in Microbiology.
- Item X. Update on ACE Certification process.
- Item XI. Discussion of the College of Arts & Sciences Strategic Plan and opportunity to ask questions of the Dean.

APPENDIX

Item I. Approval of minutes from faculty meeting on April 22, 2010 MINUTES OF THE COLLEGE OF ARTS AND SCIENCES FACULTY MEETING Thursday, 22 April 2010, 3:30 p.m. in the Nebraska Union

Opening remarks and approval of minutes:

Dean Manderscheid opened the meeting at 3:45 p.m. Wheeler Dixon (English) moved that the minutes of the last meeting be approved. Dean Manderscheid reminded faculty that the business of that meeting involved various non-controversial recommendations of College Committees which it was decided to handle by email response since weather forced cancellation of the December 9 meeting. Thomas Rinkevich (Classics and Religious Studies) seconded the motion to approve the minutes, which passed unanimously. Dean Manderscheid then stated that he had no formal opening comments.

Questions on College Committee Annual Reports

Of the seven College committee annual reports appended to the Agenda (from the Executive, Promotion and Tenure, Student Academic Distinction Awards and Appeals, Curriculum and Advising, Faculty Instructional Development, Assessment, and Endowed/College Professorships Committees) no faculty present raised any questions.

Two Recommendations of the College Curriculum Committee

Glenn Ledder (Mathematics) discussed first the Curriculum Committee's *recommendation to increase the current restriction of a maximum of 12 credits in coaching courses that may be credited toward College B.A. and B.S. degrees to a maximum of 15 credits*. This would allow students pursuing a Coaching Minor in the College of Education and Human Sciences, which requires 15 credits, to apply all 15 credits toward their A&S College degree. The faculty passed this recommendation unanimously. Stephen Burnett (Classics and Religious Studies) asked about the origin of the limit on the number of credits for courses advocating the doctrine or belief of a particular faith. He noted that UNL does not have such courses. William Watts, Asst Dean for Advising Services, explained that the limit is intended to address transfer credits from other institutions.

Ledder then discussed the Curriculum Committee's *recommendation to change the College's residency requirements*. Currently only 30 credits of open enrollment and summer independent study courses may be applied toward a College degree. The curriculum committee recommends removing this restriction since all College online and independent study courses are developed and taught by College faculty and since UNL seeks to increase online course enrollments. Counting them toward the residency requirement would increase enrollments. Ken Bloom (Physics and Astronomy) asked how this change would impact College and UNL enrollment figures. William Watts, Asst Dean for Advising Services, stated that in the current environment views are changing toward online courses. Deborah Minter (English) noted that open enrollment and independent study courses are different from online courses. (Specifically, open enrollment courses are a subset of online College courses in which students can decide when and over how long a period a course is taken.) The recommendation was passed unanimously.

Final Agenda Item: Opportunity to Ask Questions of the Dean

Ken Bloom (Physics and Astronomy) asked, What are the College's goals for next year?

Dean Manderscheid stated that he hopes to develop a strategic plan for the College. It would be a more long term plan as opposed to a yearly tactical plan as we have currently. Among his hopes are to increase College grant funding by hiring more interdisciplinary faculty. He stated that the College "is on a tear" with \$43 million in grant funding so far this year, which equals the total for all of last year. He stated that in the humanities, the award of the prestigious Bancroft Prize to Margaret Jacobs (History) "is huge" and confirms the quality of College faculty and programs. Another goal is to target more money to allow students to study abroad. A further goal is to increase further the student retention rates in each year of study. Already, he said, College student retention rates have increased so that they are now greater than for UNL as a whole, which has not been true in the past. Greg Snow, Associate Dean, added that another goal is to

review how the ACE program is playing out with regard to changes in enrollments in College courses. The Dean noted that the number of credit hours has gone up as have the number of majors.. About 6% of the 13% increase in majors can be attributed to the fact that all pre-nursing students are now counted as A&S students instead of General Studies students. Thus the true increase in number of majors is 7 %. The Dean suggested that the economy's lack of jobs in most fields may have induced students to major in A&S subjects that appeal to them rather than entering pre-professional programs. Also, the economy may have induced students who might otherwise have enrolled at out-of-state institutions to remain in Nebraska in order to benefit from its lower in-state tuition rates. Moreover, the College's enrollment growth has been accompanied by an increase in student ACT scores.

Deborah Minter (English) asked, Why is the date for ACE assessment being rolled back?

Dean Manderscheid deferred to Associate Dean Snow to answer this question. Snow stated that the intention was to give departments more time to assess courses because ACE courses only began this academic year. Glenn Ledder (Mathematics) noted that what is not being rolled back is re-certification of ACE courses after three years, although the precise schedule has not yet been determined. Snow stated that assessment and recertification should be linked. Ledder stated that the time lines may not be synchronized. Snow stated that the College does not want departments to do redundant work in doing re-certification and assessment.

Jim Lewis (Mathematics) asked, "Why is \$200K being removed from the College's teaching assistantship budget?"

Dean Manderscheid noted that UNL is required to make a 1.5% budget cut, but the College's hit is only 0.3%. The available options to cut include faculty, staff, TA lines, or vertical cuts. The Dean stated that TA budget cuts will be strategic and not be targeted for departments having increased enrollment pressures. The Dean stated that he realizes that A&S pays lower GTA stipends across the board in all departments compared to peer institutions. Consequently, last year \$85K was withheld from the salary increase allocated for the College with a view toward increasing College TA stipends. However, once budget cuts were announced that money was not spent and could be used to soften the present \$200K TA budget cut. Anthony Starace (Physics and Astronomy) asked what is the percentage of the total budget represented by \$200K. The Dean stated it was approximately 3% of the TA budget to the best of his knowledge. The Dean concluded that he will be in contact with department chairs regarding the TA budget implications for each department.

Jim Lewis (Mathematics) asked, "Does the \$2 million in research budget cuts impact the College?"

Dean Manderscheid stated that it may in fact affect the VCR office's ability to help provide services and grant matching funds. He said that VCR Prem Paul has said that the cut should not present significant problems for his office. However, Manderscheid said that we shall have to see. Nevertheless, Manderscheid recounted anecdotal evidence of worse budget cut problems elsewhere, including at the University of Colorado, Clemson, Yale, and the University of Arizona. He quoted Chancellor Perlman, who said there is a need at this time for "clear and clever thinking." Despite our problems, and perhaps as a result of worse problems elsewhere, the College is succeeding in hiring many of our first choices in this year's faculty searches. This is very good news, but we need to approach the future with a sober outlook. The Dean noted finally that he is chairing an Efficiency and Entrepreneurship pre-Task Force focused on saving and/or generating funds for UNL.

Ken Bloom (Physics and Astronomy) asked, "Are there any other worries?"

Dean Manderscheid immediately noted that space is a key issue for the foreseeable future. Another key issue is our educational infrastructure. He noted that the College's biology and chemistry laboratories are run at all possible hours but that not all students who wish to take the laboratories are able to do so. Furthermore, in chemistry the most up-to-date experiments cannot be offered owing to the need for modern fume hoods.

The meeting was adjourned at 4:55 p.m.

Respectfully submitted,

Anthony F. Starace, *Faculty Secretary*

Item III. Recommendation from the College Curriculum & Advising Committee to approve Essential Studies courses.

Area E. Historical Studies

HIST 456 Black and/or African-American Women's History (ETHN/WMNS 456) (3 cr)

Area H. Ethnicity and Gender

HIST 456 Black and/or African-American Women's History (ETHN/WMNS 456) (3cr)

Item IV. Recommendation from the College Curriculum & Advising Committee to approve the proposed change to the major in Anthropology.

Current: Requirements for the Major in Anthropology

30 hours of anthropology including ANTH 212, 232, 242/242L, and at least 12 hours in courses numbered in the 300- and 400-series. ANTH 110 may not be included in the 30 hours required for the major. Fieldwork is recommended. Only 6 credits total of 290 and 490 may count toward the major. Only 3 credits of 291 or 491 may count toward the major. A minor may be chosen from any minor offered by the College of Arts and Sciences

Proposed: Requirements for the Major in Anthropology

33 hours of Anthropology, including:

Foundation courses (ANTH 212, 232, 242/242L) 10 credits

Three advanced Anthropology courses 9 credits

Select 1 from Archaeology:

431. Advanced Historical Archaeology

432. History and Philosophy of Archaeology

433. North American Archaeology

438. Topics in Old World Prehistory

Select 1 from Biological Anthropology:

422. Medical Anthropology

442. Human Variation

430. Nutritional Anthropology

448. Human Growth and Development

Select 1 from Cultural Anthropology:

410. Women and Men

412. Social Structure

417. History of Anthropological Theory

473. Ecological Anthropology

474. Applied and Development

One Research Methods course from following 3-4 credits

290. Fieldwork

481. Landscape Archaeology

482. Research Methods in Anthropology

484. Quantitative Methods in Anthropology

487A-E. Archaeological Materials

490. Advanced Fieldwork

9-10 credits in electives from 100-, 200-, 300-, or 400- series. 12 hours in courses numbered in the 300- and 400- series may be satisfied by advanced Anthropology courses or electives.

Fieldwork is recommended. Only 6 credits total of 290 and 490 may count toward the major. Only 3 credits of 291 or 491 may count toward the major. ANTH 104A, 105A, 204A, 205A, 210, and 210A cannot be applied toward the Anthropology Major.

Grading Policy: No course may be taken Pass/No Pass.

A minor may be chosen from any minor offered by the College of Arts and Sciences.

Students contemplating graduate work should work closely with advisor to design course of study.

Justification: We propose to modify the Anthropology major in four significant ways. First, we propose to mandate that students take 3 (1 from each subdiscipline of anthropology) advanced courses from specified lists of courses to ensure students have been exposed to advanced, theoretically sophisticated treatments of anthropological material in each subarea. Second, we also now mandate that students complete at least one course in research methods. Third, where students previously could not count ANTH 110 towards the major, we now allow this to occur. Finally, we raise the total number of credit required for an Anthropology major from 30 to 33 credits. We justify these modifications on the grounds that with our current major structure, some students are leaving the program unprepared for graduate school or advanced schooling. We hope that with these modifications, we will be producing anthropologists who are well-rounded, methodologically grounded, and theoretically sophisticated. Our research has shown that, currently, most of our majors take 40 credits of Anthropology, including ANTH 110 and many 300- level courses, and field and experiential courses. Thus, we do not believe that by raising the major credit requirement from 30 to 33, we will be causing hardship to our students, especially since we now allow ANTH 110 to apply towards major requirements.

Item V. Recommendation from the College Curriculum & Advising Committee to approve the proposed changes in the major and minor in Communication Studies.

Current:

MAJOR REQUIREMENTS

Specific Major Requirements

All prospective majors must consult and register with a departmental chief adviser. Majors are expected to meet regularly with their adviser. An approved program of study must be filed at the time students declare the major or within the first 12 hours of course work in the major. In order to graduate with a communication studies major, students must have an approved program of study. The minimum number of hours for a major in communication studies is 34. The 34-hour requirement must include the following:

1. Majors must complete one of the following: **COMM 109**, **COMM 209**, **COMM 212** or **COMM 286**.
2. Majors must complete both **COMM 200** and **COMM 201**. These courses should be completed within the first twelve hours in communication studies of a student's program.
3. Majors must complete **COMM 488**.

Program Assessment. In order to assist the department in evaluating the effectiveness of its programs, majors will be required to complete a program portfolio. The undergraduate adviser will provide each major with an instruction sheet outlining the required contents of the portfolio, deadlines, and procedures.

Results of participation in this assessment activity will in no way affect a student's GPA, but could prevent or delay graduation if the program portfolio is not completed as required.

Tracks/Options/Concentrations/Emphases Requirements

Public Relations. An emphasis program with the cooperation of the College of Journalism and Mass Communications. Students may apply to receive an emphasis in public relations by completing specific requirements. Communication students must also minor in marketing. There is an application process and admittance to the emphasis is limited. See Communications Studies adviser for details.

Minor Requirements

A communication studies major must have either an approved Plan A minor or two approved Plan B minors. An approved individualized program of studies of 24 hours can also be used to meet the minor requirement. A departmental adviser must approve the minor.

ADDITIONAL MAJOR REQUIREMENTS

Prerequisite Requirements/Rules

COMM 200 and **COMM 201** must be completed before a student can enroll in any 400-level course.

Grade Rules

C- and D Grades

A grade of C or above is required for all courses in the major.

Pass/No Pass Limits

Availability of Pass/No Pass credit in communication studies courses is at the discretion of the course director and/or instructor of the course. Although the department discourages Pass/No Pass credit for majors, up to 6 hours of Pass/No Pass credit may be applied to the major requirements. Up to 6 hours Pass/No Pass credit is permitted toward the minor, subject to the approval of the department granting the major. Request forms are available in the Arts and Sciences Advising Center, 107 Oldfather Hall.

Course Level Requirement

A minimum of 19 hours must be taken in communication studies courses at or above the 300 level, excluding **COMM 390** and **COMM 490**. Of the 19 hours, at least 7 must be at the 400 level.

Extended Education, Independent Study Rules, Internship Credit Rules

The department encourages qualified students to enroll in internship and independent study in order to supplement classroom experiences. However, internships and independent studies are not a substitute for classroom experiences. No more than 3 hours of internship or independent study may count toward the 34-hour requirement in the major.

REQUIREMENTS FOR MINOR OFFERED BY DEPARTMENT

Plan A. This minor consists of a minimum of 18 hours in communication studies courses with at least 9 hours at or above the 300 level. The 18-hour requirement must include the following:

1. Plan A minors must complete either **COMM 200** or **COMM 201**.
2. Plan A minors must complete either **COMM 109**, **COMM 209**, **COMM 212**, or **COMM 286**.
3. A minimum of 9 hours must be taken in communication studies classes at or above the 300 level excluding **COMM 390** and **COMM 490**.
4. Of the 9 hours, at least 3 must be at the 400 level. **COMM 200** or **COMM 201** must be completed before a student can enroll in any 400-level course. **COMM 490** cannot be used to meet this requirement.
5. The department encourages qualified students to engage in internships and independent studies in order to supplement classroom experiences. However, neither an internship nor an independent study is a substitute for classroom experiences. No more than 3 hours of internship or independent study may count toward the 18-hour minor requirement.

Plan B. 12 hours of communication studies courses with at least 9 hours at or above the 200 level, excluding **COMM 390** or **COMM 490**. A maximum of 3 hours of internship or independent study may apply to the 12-hour requirement.

Proposed:

Specific Major Requirements

All prospective majors must consult and register with a departmental academic adviser. Majors are expected to meet regularly with their adviser. An approved program of study must be filed at the time students declare the major or within the first 12 hours of course work in the major. In order to graduate with a communication studies major, students must

have an approved program of study. The minimum number of hours for a major in communication studies is 36. The 36-hour requirement must include the following:

1. Majors must complete one of the following: COMM 109, COMM 209, COMM 212 or COMM 286.
2. Majors must complete both COMM 200 and COMM 201. These courses should be completed within the first twelve hours in communication studies of a student's program.
3. Majors must complete COMM 495

Program Assessment: In order to assist the department in evaluating the effectiveness of its programs, majors will be required to complete an assessment of the major. This assessment will be implemented in the Communication Studies capstone course: COMM 495.

Results of participation in this assessment activity will in no way affect a student's GPA, but could prevent or delay graduation if the assessment is not completed as required.

Minor Requirements

A communication studies major must have either an approved Plan A minor or two approved Plan B minors. An approved individualized program of studies of 24 hours can also be used to meet the minor requirement. A departmental adviser must approve the minor.

ADDITIONAL MAJOR REQUIREMENTS

Prerequisite Requirements/Rules

COMM 200 and COMM 201 must be completed before a student can enroll in any 400-level course.

Grade Rules

C- and D Grades

A grade of C or above is required for all courses in the major.

Pass/No Pass Limits

Availability of Pass/No Pass credit in COMM courses is at the discretion of the course director and/or instructor of the course. Although the department discourages Pass/No Pass credit for majors, up to 6 hours of Pass/No Pass credit may be applied to the major requirements. Up to 6 hours Pass/No Pass credit is permitted toward the minor, subject to the approval of the department granting the major.

Course Level Requirement

A minimum of 21 hours must be taken in communication studies courses at or above the 300 level, excluding COMM 390 and COMM 490. Of the 21 hours, at least 9 must be at the 400 level. COMM 200 and 201 must be completed before a student can enroll in any 400-level course. COMM 490 cannot be used to meet this requirement.

Extended Education, Independent Study Rules, Internship Credit Rules

The department encourages qualified students to enroll in internship, independent study, and study abroad experiences in order to supplement classroom experiences. However, none of these is a substitute for classroom experiences. No more than 3 hours of internship, independent study, or study abroad credits may count toward the 36-hour requirement in the major.

REQUIREMENTS FOR MINOR OFFERED BY DEPARTMENT

A communication studies major must have either an approved Plan A minor or two approved Plan B minors. An approved individualized program of study of 24 hours can also be used to meet the minor requirement. A departmental

adviser must approve the minor.

Plan A. This minor consists of a minimum of 18 hours in communication studies courses with at least 9 hours at or above the 300-level. The 18-hour requirement must include the following:

1. Plan A minors must complete either COMM 200 or COMM 201.
2. Plan A minors must complete either COMM 109, COMM 209, COMM 212, or COMM 286.
3. A minimum of 9 hours must be taken in communication studies classes at or above the 300 level excluding COMM 390 and COMM 490.
4. Of the 9 hours, at least 3 must be at the 400 level. COMM 200 or COMM 201 must be completed before a student can enroll in any 400-level course. COMM 490 cannot be used to meet this requirement.
5. The department encourages qualified students to enroll in internship, independent study, and study abroad experiences in order to supplement classroom experiences. However, none of these is a substitute for classroom experiences. No more than 3 hours of internship, independent study, or study abroad credits may count toward the 36-credit-hour requirement in the major. Please refer to items 4 and 5 above.

Plan B. 12 hours of communication studies courses with at least 9 hours at or above the 200 level, excluding COMM 390 or COMM 490. A maximum of 3 hours of internship or independent study may apply to the 12-hour requirement.

Justification: Most of the proposed changes that appear are cosmetic (e.g. removing an extraneous period after the title "Graduate Work," changing listings of courses from 200 to COMM 200). However, there are a few substantive changes described below:

1. The central change is under way specific major requirements and includes increasing the number of credits in the major from 34 to 36. This increase is necessary in light of the new ACE 10 requirement. Prior to ACE, we required that students take a 1-credit senior seminar which has served as our capstone/exit course. The ACE 10 requirement necessitated that we design a 3-credit capstone course in which students will meet the objective of "general[ing] a creative or scholarly products that requires broad knowledge, appropriate technical proficiency, information collection, synthesis, interpretation, presentation, and reflection." The addition of this course results in the need to increase our major credit hours from its current 34 to 36 in order to ensure students meet the curricular objectives outlined in the major as well as complete ACE 10. All other credit hour changes (e.g., a minimum of 21 hours rather than the original 19) are editorial changes that reflect the increase from 34 to 36 overall. For example, student must now complete 9 hours at the 400-level instead of the original 7 as we have added 2 credits to the 400-level requirement with the 400-level ACE course.
2. In light of ACE 10, we have also changed the third specific major requirement from "Majors need to complete COMM 488" to Majors need to complete COMM 495 (the proposed course number for ACE 10)".

Item VI. Recommendation from the College Curriculum & Advising Committee to approve the proposed new minor in Computational Biology and Bioinformatics.

Minor Requirements

- a. **18 hours** includes 13 hours for the core courses and at minimum 5 hours from elective courses are required.
- b. Foundation courses: The following courses are required for the CBB Minor students to have the necessary foundations towards the Minor. These courses are also the prerequisites to the core courses listed below:
 - BIOS 102 Cell Structure and Function (4 cr)
 - CHEM 109 General Chemistry I (4 cr) or equivalent
 - MATH 106 Analytic Geometry and Calculus I (5 cr) or equivalent
- c. **Core courses: 4 courses (13 hours)***
 - CSCE155T Computer Science I (3 cr, starts Fall 2011)
 - BIOS 237 Basic Application of Bioinformatics (4 cr) (starts Fall 2011)

- STAT 218 Introduction to Statistics or STAT 380 Statistics and Applications (3 cr, special section of STAT 218 for CBB minor may be offered in Fall 2011)**
- CSCE 311 Data Structures and Algorithms for Informatics (3 cr) (starts Spring 2012)

*These requirements can be replaced with equivalent courses upon approval except for BIOS 237, which cannot be replaced.

**Students are strongly encouraged to take STAT 218 or 380. However, ELEC 305 (Probability Theory and Introduction to Random Processes) can be used to satisfy this requirement subject to approval.

d. Elective courses: 2 courses (5 hours or more) at 400 levels

- Take one each from Life Science electives and Computer Science/Mathematics/Statistics/Engineering electives in the following lists. These lists will be updated periodically. Similar courses can be used to fulfill elective requirements upon approval by the CBB Minor steering committee.
- For life science major students, those courses listed as LS elective 2 cannot be used for CBB requirements. For students in computer science, mathematics, engineering, and related majors, those courses listed as CMSE elective 2 cannot be used for CBB requirements.

• Life Science elective courses

[LS elective 1: for students in life science majors]

- BIOS 427 Practical Bioinformatics Laboratory (3 cr)
- BIOS 428 Perl Programming for Biological Applications (3 cr)
- BIOS 456 Mathematical Models in Biology (3 cr)
- BIOS 477 Bioinformatics and Molecular Evolution (3 cr)
- STAT 442 Computational Biology (3 cr)

[LS elective 2]

- BIOC 431 Biomolecules and Metabolism (4 cr)
- BIOC 432 Gene Expression and Replication (2 cr)
- BIOC 434 Plant Biochemistry (3 cr)
- BIOS 420 Molecular Genetics (3 cr)
- BIOS 425 Plant Biotechnology (3 cr)
- BIOS 429 Phylogenetic Biology (4 cr)
- BIOS 472 Evolution (4 cr)

• Computer Science/Mathematics/Statistics/Engineering elective courses

[CMSE elective 1: for students in computer science major]

- CSCE 471 Introduction to Bioinformatics (3 cr)

[CMSE elective 2]

- BSEN 414 Medical Imaging Systems (3 cr)
- CHME 473 Biochemical Engineering (3 cr)
- CHEM 474 Advanced Biochemical Engineering (3 cr)
- CSCE 410 Information Retrieval Systems (3 cr)
- CSCE 413 Database Systems (3cr)
- CSCE 421 Foundations of Constraint Processing
- CSCE 423 Algorithms (3cr)
- CSCE 435 Cluster and Grid Computing (3 cr)
- CSCE 456 Parallel Programming (3 cr)
- CSCE 471 Digital Image Processing (3 cr)
- CSCE 474 Introduction to Data Mining (3 cr)
- CSCE 476 Introduction to Artificial Intelligence (3 cr)
- CSCE 478 Introduction to Machine Learning (3 cr)
- CSCE 479 Introduction to Neural Networks (3 cr)
- MATH 439 Mathematical Models in Biology (3 cr)

MATH 452 Graph Theory (3 cr)
STAT 412 Introduction to Experimental Design (3 cr)
STAT 450 Introduction to Regression Analysis (3 cr)

3. Bulletin-ready description

Coordinator: Computer Science and Engineering Department, 256 Avery Hall, Lincoln NE 68588-0115. Phone: (402) 472-2401; email: cbb@unl.edu; website: <http://cbb.unl.edu>.

Steering Committee: Etsuko Moriyama (Chair, CBB Steering Committee), Biological Sciences; Stephen D. Kachman, Statistics; Stephen E. Reichenbach, Computer Science and Engineering; Jeyamkondan Subbiah, Biological Systems Engineering / Food Sciences & Technology.

The Computational Biology and Bioinformatics (CBB) Minor is an interdisciplinary program that prepares students to understand, use, and develop advanced computational methods and tools for processing, visualizing, and analyzing biological data and for modeling biological processes. Studies in computational biology and bioinformatics involve biosciences, computer science, engineering, mathematics, and statistics. Students will be prepared for careers in biomedical, biotechnology, agricultural, pharmaceutical, and engineering fields and for related graduate studies.

4. CBB minor governance

Refer to the CBB Steering Committee Bylaws.

Justification: Computational Biology and Bioinformatics is a rapidly growing field that uses technology in computer science, engineering, statistics, and mathematics to explore and understand biological data from high-throughput experiments, such as genome sequencing, gene expression analysis, and proteomics and metabolomics experiments. It deals with a wide range of topics including gene identification, expression, function, and evolution; RNA, protein, and genome structure; and molecular and cellular systems and networks. There is a growing need for scientists in this interdisciplinary field. Graduates with this minor are expected to find their careers in pharmaceutical, biomedical, or biotechnology industries or to continue their academic training in graduate schools. Due to its highly interdisciplinary nature, students from different colleges will be interested in taking this minor. Training of students in this minor also requires cross-college efforts. In order to realize this new type of interdisciplinary training, we propose a new undergraduate minor, Computational Biology and Bioinformatics (CBB), as a campus-wide, cross-college minor.

The minor has two tracks, depending on the student's major. It assures that students are trained with sufficient depth in the field of major interests. The CBB minor requires for students to fulfill four core courses (13 hours) that establish fundamental knowledge in molecular biology, computer science, statistics, and bioinformatics. Depending on students' major, elective requirements (5 hours or more) are aimed to broaden their non-major side of knowledge with more depth. The goal of this curriculum is to offer minimum but sufficient amount of training in multiple fields that prepare students in computational biology and bioinformatics career. Overlapped courses can be taken for the student's major as well as the CBB minor requirements.

Item VII. Recommendation from the College Curriculum & Advising Committee to approve proposed new minor in Global Security Studies.

Chair and Chief Advisor: Patrice MacMahon (Political Science)

Faculty: Tyler White (Political Science), Russell Ganim (Modern Languages), Kathleen Krone (Communication Studies), Debra Minter (English), William Thomas (History), Sunil Narumalani (Geography/School of Natural Resources)

Purpose

The undergraduate Global Security Studies Minor (GSST) is an *interdisciplinary* program that provides undergraduates across campus (any department or college) with relevant knowledge of various aspects of global security and the theory and analytical skills necessary for dealing with global security studies issues. Students interested in global security issues, security-related job opportunities, or a desire to have a set of analytical skills relevant to global issues will benefit from the GSST. Students who have completed the GSST requirements will, upon graduation, receive a minor in Global Security Studies.

The minor requires 18 credit hours of course work with a grade of B or better, a 3 credit hour capstone course (GSST 475) and an experiential learning internship (variable 1-3 credit hours) for a total of 22-24 credit hours.

Principles and Requirements for the Undergraduate Global Security Studies Minor (22-24 hours):

Four principles train students to analyze systematically and coherently global security issues, develop writing and critical thinking skills, negotiate multiple and competing interests, and develop in-depth knowledge and application in substantive international policy issue(s). Certain special topics courses not listed below that have a significant global security component may also be eligible for inclusion in a student's minor program plan. Approval of Chief Adviser is required to include courses not listed below.

1. **CORE** courses: Cover the theories, processes, models, and methods of global security studies and security policy analysis. (6 hours; Includes POLS 160 and choose between 261 or 263)

POLS 160 International Relations
AND
(POLS 261 Conflict and Conflict Resolution
OR
POLS 263) Causes of War and Peace

2. **Writing and Analysis** courses develop writing and critical thinking/analysis skills that are relevant to the intelligence community. Choose two of the following – one course from Writing and one course from Critical Thinking/Analysis for a total of 6 hours. No more than 3 hours of courses taken to meet any degree requirement may be used to meet the Rhetoric and Analysis requirements of 6 hours for the Global Security Studies minor.

Writing

ENGL 151 Writing: Rhetoric as Argument
JOUR 102 Art of Writing
JOUR 444 Science Writing

Critical Thinking/Analysis

COMM 210 Small Group Problem Solving
COMM 211 Intercultural Communication
COMM 212 Debate
COMM 312 Argumentation

PHIL 220 Elements of Ethics
PHIL 221 Political Philosophy
PHIL 265 Philosophy of Religion
PSYC 350 Research Methods and Data Analysis
SOC 205 Introduction to Social Research I
SOC 206 Introduction to Social Research II

3. **SPECIALIZATION** Students are free to develop their own plan of study in consultation with the global security studies minor coordinator. Areas below are examples. (6 hours or two courses within a specialization are required – Students are responsible for checking and meeting prerequisites to some of the courses):

AREA A: POLITICAL/ECONOMICS

POLS 362 Globalization, Human Rights, and Diversity
POLS 470 International Human Rights
POLS 472 State Terror
POLS 476 Ethnic Conflict and Identity

HIST 303 US Military History since 1917
POLS 363 USA Foreign Policy

POLS 463 American Foreign Policy and the Use of the Military
GEOG 447 Political Geography
POLS 462 Security in the Post Cold War
HIST 479/POLS 466 Pro-seminar in International Relations I
POLS 479 Insurgency, Guerilla Warfare, and Terrorism

ECON 321 Introduction to International Economics
ECON 388 Comparative Economic Systems
ECON 421 International Trade
ECON 422 International Finance
ECON 423 Economics of Less Developed Countries
ECON 487 Economies in Transition

POLS 272 Non-Western Politics
POLS 274 Development in East Asia
POLS 275 Post-Communist Politics and Change
POLS 277 Latin American Politics
POLS 281 Challenges to the State
HIST 326 Algeria and France
POLS 372 Russian Politics
POLS 376 Chinese Politics

AREA B: CULTURAL

HIST 181/POLS 171 Introduction to East Asian Civilization
HIST 326 Algeria & France
HIST 429 History of Fascism in Europe
HIST 466 Early Modern China
HIST 467 History of China in the 20th Century
HIST 480 The Social and Economic History of China since the late Ming Era

RELG 108 World Religions
RELG 181 Judaism, Christianity and Islam
RELG 208 Introduction to Islam
RELG 217 Israel: The Holy Land
RELG 318 Islam in the Modern World
HIST 218/JUDS 219/RELG219 History of Islam
RELG 418 Fundamentalism, Religion & Politics
SOC 452 Sociology of Religion

ANTH 353 Anthropology of War
ANTH 370 Peoples and Cultures of East Asia
ANTH 420 Ethnic Identity and Ethnic Conflict

COMM 312 Argumentation
COMM 371 Communication in Negotiation and Conflict Resolution
COMM 375 Theories of Persuasion
COMM 487 Global Organizational Communication

AREA C: LANGUAGES

(Students may choose courses based on fluency level and input from the GSST adviser)

Arabic

ARAB 101 Beginning Arabic I
ARAB 102* Beginning Arabic II
ARAB 201* Second-Year Arabic I

ARAB 202* Second-year Arabic II

* Proposals for designators for these courses will be submitted by Dr. Simon Wood from CRS to the CCAC on his return from a sabbatical in Spring 2011. If approved by faculty vote in April 2011, the courses will appear in the 2011-2012 bulletin. Presently, these courses are taught as RELG 398 Special Topics.

Chinese

CHIN 101 Beginning Chinese I
CHIN 102 Beginning Chinese II
CHIN 201 Second-Year Chinese I
CHIN 202 Second-Year Chinese II
CHIN 303 Third Year Chinese
CHIN 304 Advanced Conversation and Composition Chinese

Russian

RUSS 101 Beginning Russian I
RUSS 102 Beginning Russian II
RUSS 201 Second-Year Russian I
RUSS 202 Second-Year Russian II
RUSS 203 Composition and Conversation I
RUSS 204 Composition and Conversation II
RUSS 303 Advanced Conversation and Composition: Russian Language through the Russian Press
RUSS 304 Advanced Composition, Grammar, and Conversation

AREA D: SCIENTIFIC/TECHNICAL

GEOG 217 Mapping Science in the 21st Century
GEOG 312 Introduction to Geospatial Information Sciences
GEOG 412 Introduction to Geographic Information Systems
GEOG 418 Introduction to Remote Sensing
GEOG 420 Digital Image Analysis of Remote Sensing Data
GEOG 444 Geo-demographics and GIS

4. CAPSTONE COURSE AND EXPERIENTIAL LEARNING: Global Experience; study abroad, internship, fieldwork. Students will take a one-semester global securities capstone course (new course: GSST 475) followed by one of two options: 1) a study abroad and/or internship experience; or 2) a summer study-abroad experience. The global experience occurs after completing or during the last semester of course work for the GSST. The global security studies minor coordinator will help students find an appropriate study abroad or internship experience. Academic requirements for the internship will be set by the GSST adviser and it is preferred that that this experience be in the student's area of expertise or associated with the language area of specialization (AREA C). Students must complete a report associated with their global experience.

GSST 475 Threats and Solutions to Global Security in the 21st Century (new course)

Students must meet with the GSST coordinator to set up a plan of study. For more information or to enroll in the minor program, contact Tyler White, Department of Political Science, Oldfather Hall 509, 472-9443. Email: twhite2@unl.edu.

Justification: With the rise of emerging power, globalizing economy, historic transfer of relative wealth and economic power from the West to the East, and the growing influence of non-state actors, the global state is changing. Not only are the players changing, but also the scope and breadth of transnational issues important for continued global prosperity. Intensifying constraints on food, water, and energy resources; worries about climate change; and changing population demographics will impact the economic and social structures of all nations. At the same time, terrorism, proliferation, and conflict will remain key concerns even as resource issues move up on the international agenda.

The goal of the GSST minor is to prepare our students for exactly such a complex and uncertain world of the future. It is a well-acknowledge fact that students from any academic institution should be familiar with a broad range of scientific, historical, geographical, and social skills, designed to enable them to solve real human problems that confront advanced societies. The GSST minor dovetails perfectly with the mission of UNL's Great Plains National Security Education Consortium (GP NSEC), a five year, \$3 M grant to prepare the next generation of diverse leaders for the US Intelligence Community (IC). Undergraduate and graduate students accepted into this program receive training, mentoring, travel abroad funding, and networking opportunities that will make them particularly competitive for internships and entry- to mid-level jobs in the IC.

The GSST is designed to provide IC-bound students with the critical thinking, writing, and analytical skills the IC requires, while at the same time appealing to a broad cross-section of students interested in adding security affairs to their chosen major. In the mid- to far-term, a robust GSST will enhance the preparedness and reputation of our IC Scholars, which will result in established employment pipeline into government service and, in turn, draw more students to UNL across a range of majors. Furthermore, the grant contains significant resources to build and start the GSST, so start up cost and risk is minimized.

The unique integrative character of the program is evident in GSST's curriculum content. The minor brings together existing courses at UNL and offers students a focused course of study in contemporary security issues. The scope of its curriculum includes the understanding of cultural and political issues combined with the development of critical writing and analytical skills. Based on the selection of an area of specialization, students have the opportunity of developing expertise in critical political/economic, cultural, language or scientific area. The program is also based largely upon the existing teaching and research expertise of UNL faculty, and represents a wise use of university resources.

Global Security Studies can also provide an impetus for UNL to expand and develop into new areas. For example, UNL's developing relations with various Asian countries (e.g., China, Malaysia) reflects an intellectual investment for great success in business and academic exchanges with that part of the world. The importance of educating Nebraska's citizens in understanding a variety of world views and values cannot be understated. With changing state demographics and the likelihood of Nebraska being a player on the global stage necessitates that we offer the citizens an opportunity to develop knowledge and expertise that is an investment in the nation's security and future.

Item VIII. Recommendation from the College Curriculum & Advising Committee to approve the proposed title change for the minor in Human Rights Human Diversity.

Current: Minor in Human Rights and Human Diversity

Proposed: Minor in Human Rights and Humanitarian Affairs

Justification: The Forsythe Family Program on Human Rights and Humanitarian Affairs was formerly known as Human Rights and Human Diversity. Due to a recent private donation, the program's name was changed last year. The name of the minor, however, was not officially changed. In order to simplify everything for our minors and to more accurately describe the coursework that we offer to our students, we propose changing the name of the minor so that it matches the new name of the program.

Item IX. Recommendation from the College Curriculum & Advising Committee to approve the proposed new major in Microbiology.

UNDERGRADUATE PROGRAM IN MICROBIOLOGY

I. DESCRIPTIVE INFORMATION

Institution Proposing the Program

University of Nebraska-Lincoln

Program Name

Degree Program in Microbiology

Degree to be Awarded

Bachelor of Science in Microbiology (College of Agricultural and Sciences and Natural Resources)
Bachelor of Science (College of Arts and Sciences)

Other Programs Offered in this Field by this Institution

Currently, there are no programs in this area. Although, some microbiology courses are offered in the School of Biological Sciences and the Departments of Agronomy and Horticulture, Biochemistry, Food Science and Technology, Plant Pathology, and Veterinary and Biomedical Sciences.

CIP Code: 26.0505

Administrative Units for the Program

College of Agricultural Sciences and Natural Resources (CASNR)

Department of Biochemistry

Department of Food Science and Technology

Department of Plant Pathology

Department of Veterinary and Biomedical Sciences

College of Arts and Sciences (CAS)

School of Biological Sciences (SBS)

Other departments that would like to participate would be considered by the advisory committee (See below)

Proposed Delivery Site

University of Nebraska-Lincoln campus

Proposed date (term/year) the Program will be initiated

Fall semester 2012

Date approved by Governing Board

To be announced

Description and Purpose of the Proposed Program

This program will empower students with a world-class education befitting of the University of Nebraska-Lincoln. Students will have the opportunity to acquire the knowledge and skills they need to succeed in an increasingly complex, diverse, interconnected and changing world. They will learn how to acquire new knowledge, form their own well-grounded opinions and beliefs. These abilities will prepare them for a variety of careers in a quick-changing and diverse workplace.

Microbiology, the study of microscopic organisms and viruses, is comprised of subdisciplines including physiology, biochemistry, genetics, diversity, ecology and evolution. The science of microbiology revolves around two general themes: 1) understanding basic life processes, and 2) application of our understanding of microbiology for the benefit of mankind. Microbes play a central role in human activities and the web of life on Earth. Although microbes are small, collectively they constitute the largest mass of living material on Earth, and the diversity of microbial life exceeds that of plants and animals. Humans, plants and animals are intimately linked to microbial activities for the recycling of key nutrients and for degrading organic matter. Most animal and plant diseases are caused by microorganisms. They play a major role in soil fertility and domestic animal production. Many large-scale industrial processes such as antibiotic and biofuel production depend on microorganisms. Thus microorganisms are an excellent model for understanding biology at many levels and these concepts are strongly represented in our required microbiology courses. The beneficial and detrimental

effects of microorganisms constitute an important knowledgebase that will prepare our students to participate in Life Sciences in the 21st century.

Microbiology is unusual in the life sciences because there are several distinct careers that a student can pursue directly after acquiring an undergraduate degree in microbiology. These include careers in the food industry, clinical microbiology, and biotechnology. A microbiology major is also an excellent major to prepare students for graduate school or professional schools such as medical, pharmacy or dental school.

A secondary benefit of establishing an inter-college inter-departmental microbiology degree program at UNL is that it will help coordinate existing microbiology curricula on campus and it should facilitate interactions between faculty across departments and campuses. It would also lead to closer interactions with the new School of Public Health at UNMC. Finally, establishing a microbiology degree program at UNL would provide trained microbiologists who will likely be needed in positions at UNL Innovation Park and in other biotechnology companies in Nebraska.

Structure and Operation

The program will be governed by a director and an advisory committee. The founding director will be elected by the advisory committee from faculty nominees and will serve for a 5 year term. The founding advisory committee was formed by the Heads and Director of the initial participating Departments and School. The current members of the advisory committee and the Departments and School to which they belong are as follows: Jim Alfano (Co-chair), Dept. of Plant Pathology; Audrey Atkin (Co-chair), School of Biological Sciences; Paul Blum, School of Biological Sciences; Bob Hutkins, Dept. of Food Science and Technology; Rod Moxley; Dept. of Veterinary and Biomedical Sciences; Bob Sprietzer, Dept. of Biochemistry; and Luwen Zhang, Nebraska Center for Virology and School of Biological Sciences.

The microbiology program will be housed in the Beadle Center because of its central location, the large number of life science students, and because it is where the microbiology teaching laboratories are located. We have requested funds from CASNR and CAS to support a an academic advisor, as well as funds for webpage construction and maintenance, Beadle Business Center support, program assessment and an administrative supplement for the Director.

The Director will consult with the advisory committee prior to making major decisions regarding the microbiology program. However, decisions regarding the microbiology program will ultimately rest with the Director. The Director will interact with the Department Heads and the Director of the SBS to insure that the microbiology courses are regularly offered. The Director will report directly to the Deans of CASNR and CAS.

Proposed Curriculum

The goal of the microbiology program is to offer a field of study for students who are interested in microbiology. Our curriculum meets requirements in both the CAS and the CASNR and it closely follows the recommendations of the American Society for Microbiology. The core curriculum requirements are similar to those for Biochemistry, Plant Biology and Biological Sciences which is consistent with the recommendation for a core curriculum for the life sciences in the Life Science Proposals from the Chancellor's State of the University Address, September 10, 2009. The curriculum is unique because it takes advantage of the rich expertise in microbiology at UNL by coordinating the elective microbiology courses currently taught by microbiology faculty in different departments. The electives are deliberately flexible because the potential careers in microbiology are so diverse and increasingly interdisciplinary. This enables microbiology students to develop a custom program of studies to best meet their personal goals. We recognize that quality advising is key for the students to best meet their goals in a flexible program and for that reason have requested funds for a full-time advisor. It also meets the educational requirement for Professional Certification as a Registered Microbiologist ([RM]NRCM) by the National Registry of Certified Microbiologists (NRCM) (Appendix 3)]. Importantly, at least initially, we are not proposing any new courses and all the courses within the curriculum are regularly offered and will remain in their individual academic units.

Learning Outcomes with Selected Objectives

Upon graduation, Microbiology undergraduate students will:

1. Demonstrate a sound working knowledge of the field of microbiology.
2. Demonstrate a competency of the skills necessary to perform effectively and safely in a microbiology laboratory.
 - a. Master the basic techniques essential to sound laboratory practice.
 - b. Ask pertinent questions about microbiology, formulate hypotheses based on those questions, and design experiments to test those hypotheses.
 - c. Apply deliberate and thorough observational skills to conduct experiments and collect data.
 - d. Know how to organize and summarize data and present them in a way that is accurate and comprehensible in both verbal and visual modes.
 - e. Interpret data and draw conclusions that either support or refute hypotheses and make a case for alternative hypotheses.
3. Understand, manage and apply information about microbiology from both scholarly and popular sources.
 - a. Demonstrate the professionalism expected of the roles that they may serve in society.
 - b. Work in a collaborative manner.
 - c. Communicate technical scientific information clearly and coherently to professional colleagues as well as the general public in written or verbal formats.
 - d. Characterize and value ethical behavior in conducting research, application of biotechnology and communicating scientific knowledge.
 - e. Understand the importance of the ethical, legal and environmental dimensions of complex problems and issues facing biomedical, agricultural and natural resource professionals.

Requirements for the Degree Program/Major in Microbiology

The details of the curriculum are outlined in Appendix 2. Briefly, students majoring in microbiology would take essentially the same courses whether they were pursuing their degree from CASNR or CAS. They would take core Microbiology, natural science and general education courses.

Required Microbiology Courses (13-14 hours)

BIOS 312 Fundamentals of Microbiology

BIOS 313 Molecular Microbiology Laboratory (2 hours) or BIOS314 Microbiology Laboratory (1 hour)

BIOS 440 Microbial Physiology

BIOS 420 Molecular Genetics

BIOS 443 Immunology

Elective microbiology courses (12-18 hours at the 300 level or above)

Natural Science Requirements (45-46 hours)

BIOS 102, 103, 206

CHEM 109, 110 (or 113, 114, 116), 251, 253 (or 261, 263)

MATH 106 (or CAS students could substitute this with MATH 106B)

STAT 218 (or one of EDPS 459, ECON 215, STAT380)

PHYS 141, 142 (or 211, 212)

BIOC 431 (or 321, 321L)

College Distribution Requirements (19-25 hours)

ACE Learning Outcomes (30 hours)

Students majoring in microbiology will be able to choose from a list of microbiology elective courses to fill out their course work and focus it on the area of microbiology that interests them. They would be able to develop strengths in the following areas:

1. General Microbiology

2. Clinical and Veterinary Microbiology
3. Food Microbiology
4. Biotechnology and Industrial Microbiology
5. Applied, Environmental, and Plant Microbiology

It is important to note that the degree earned will not state the area of specialization. As the degree program matures, this may be a consideration in the future.

For the microbiology program to be successful, access to undergraduate advising is critical. Thus, we plan on having a full time undergraduate advisor to insure that our students are well advised to help them reach their career goals.

II. REVIEW CRITERIA

A. Centrality to Role and Mission

The University of Nebraska-Lincoln has a tripartite mission of teaching, research and public service. The 2020 Vision is that UNL become one of the leading public research universities in the nation and be ranked among the strongest state universities in academic quality. An important component of that vision is development of strong undergraduate programs. In order to accomplish that goal, teaching must be of the highest quality and integrate research. *UNL has a dynamic and diverse microbiology faculty with productive research programs in diverse areas spanning the depth and breadth of microbiology.* These faculty are distributed in a variety of departments, but their research and graduate training expertise is coordinated through the Microbiology Initiative at UNL (<http://microbiology.unl.edu>). These faculty have begun an effort to extend this coordination to undergraduate education through an NSF funded Research Experiences for Undergraduates (REU) in Bioenergy Systems and a summer research opportunities programs (SROP) in Virology. A Microbiology major would better leverage the teaching expertise of this interdisciplinary group of faculty, coordinate existing and future microbiology curriculum, and facilitate engagement of undergraduate students with faculty who have diverse microbiology research programs. The result will be scholars who have the critical thinking skills and quest for knowledge necessary to enter the work force and enrich Nebraska's economy.

Historically, UNL had a microbiology department and it was merged with the departments of Botany and Plant Pathology and Zoology to create the School of Biological Sciences in 1975. The merging of microbiology departments with other departments was a trend across college campus in the 1970s. Interestingly, there is a trend now for establishing microbiology programs and/or departments across the country. Additionally, even at that time there were microbiologists in other departments at UNL. Currently, there are 53 faculty members belonging to the Microbiology Initiative at UNL that view themselves as microbiologists. This initiative was formed to coordinate interdepartmental research and training in microbiology and received a Program of Excellence from UNL in 2008 to further support its goals. There have been at least a couple recent attempts to establish a microbiology degree program. The Plant Pathology Department was asked in 2008 to establish an interdepartmental intercampus microbiology degree program. At the same time the School of Biological Sciences Microbiology and Molecular Biology faculty were discussing development of an emphasis in microbiology. These recent activities brought the five participating academic units together with much momentum to establish an undergraduate microbiology program.

B. Evidence of Need and Demand

1. Need for the Program

There are national trends that predict a great need for microbiologists in the future. For example, the national goal on developing biofuels will likely lead to jobs for microbiologists. Currently, one of the most promising biofuels areas is the development of technologies trying to use algal microorganisms to make oil, and studying and implementing these technologies will require many microbiologists. Another national trend which will likely lead to a great need for microbiologists nationwide and also in Nebraska is in improving food safety and

enhancing gut health. Microbiology is unusual in the life sciences in that there are many distinct career tracks one can take with an undergraduate degree in microbiology. These include careers in clinical microbiology, food technology, industrial microbiology, environmental microbiology, and biotechnology. There are no microbiology degree programs in the State of Nebraska. This illustrates the great need for this program at UNL. At the moment, Nebraskans that are interested in microbiology programs need to leave our State to receive this training. This is doubly frustrating since the courses are being offered at UNL but they are not centralized enough for them to reach the students in a coherent manner.

2. Current Demand for the Program

The student demand for a microbiology program would be high. Nationwide microbiology departments generally have 50-200 undergraduate students. Within the first two years we anticipate about 100 undergraduate students majoring in microbiology. Within the first 5 years the total enrollment in the program may level off at about 150 students, with about 37 students joining the major each year.

3. Anticipated Demand for the Program

We believe the demand for this program will increase in the future. The State of Nebraska Department of Labor website predicts that from 2006 to 2016 there will be an increase of 31% in healthcare practitioners and technical occupations, and a 19.7% increase in life, physical, and social science occupations. Many of the positions within these categories would be microbiologists. UNL's own Innovation Park will require many research technicians within the next 5 years that could derive from an undergraduate microbiology degree program.

C. Required Resources

1. Faculty and Staff Resources

The program will require a Director and an Academic Advisor.

The Director will be responsible for administration of the program in consultation with the advisory committee and they will directly supervise the Academic Advisor.

The Academic Advisor will be responsible for academic advising of students, recruitment of new students and coordinating program assessment.

General administrative support for the program will be provided by the Beadle Business Center.

No additional faculty positions are anticipated at this time.

These costs will be shared equally by CAS and CASNR.

2. Physical Facilities

UNL has adequate physical facilities to support the proposed program.

3. Instructional Equipment and Informational Resources

No additional instructional equipment and informational resources will be needed at this time. However, if the program is successful we would likely need funding for laboratory courses, which would also require additional teaching assistants.

4. Budget Projections

We request an administrative supplement and release from teaching for the Director. We also request funds for an Academic Advisor to help run the Microbiology Program. Funds are requested for administrative support by the Beadle Business Center, and the general operating needs of the Academic Advisor. The general operating needs of the Academic Advisor include phone access and computational equipment. We request funds for website creation and regular maintenance. Routine updates to the website will be provided by the Beadle Business Center, however we anticipate that we will require a professional website designer periodically to update the website. Finally, we request funds for program assessment.

D. Avoidance of Unnecessary Duplication

No other institution in Nebraska offers programs to earn an undergraduate degree in microbiology. There are not many other undergraduate microbiology programs in States that belong to the Midwestern Higher Education Compact (IL, IA, MI, MN, MO, IN, KS, OH, SD, ND, WI, and NE). If there are microbiology programs in these other States they tend to be offered through their Biology Departments or Microbiology Departments. For example, the University of Kansas and Indiana University offer B.S. degrees in Microbiology through their Biology Departments. The University of Iowa and the University of Minnesota offer B.S. degrees in Microbiology from the Microbiology Department in their medical schools. Iowa State University does offer a B.S. degree in Microbiology from the Departments of Plant Pathology and Animal Science. However, since our proposed program includes several more departments we feel that our program will offer a more diverse education in microbiology.

E. Consistency with the Comprehensive Statewide Plan for Postsecondary Education

The proposed Microbiology Program is consistent with the Comprehensive Plan for Postsecondary Education. It is in line with the main goals of this plan in that it proposes to implement a program that addresses an educational need of the State of Nebraska. Additionally, by offering this program in an interdepartmental manner it will efficiently utilize the available resources and avoid duplication of microbiology programs at UNL. The program will offer Nebraska students a high quality education in microbiology and it will likely attract students from neighboring States. There is a great need in Nebraska and across the United States for students trained in microbiology and this need will only increase in the future. UNL is committed to training students to become leaders that will enhance and promote Nebraska's role in state, national, and global economies.

Appendix 2

Curriculum for the Microbiology Program

College of Arts and Sciences

Microbiology

Steering Committee: Jim Alfano (Co-chair), Dept. of Plant Pathology; Audrey Atkin (Co-chair), School of Biological Sciences; Paul Blum, School of Biological Sciences; Bob Hutkins, Dept. of Food Science and Technology; Rod Moxley, Dept. of Veterinary and Biomedical Sciences; Robert Sprietzer, Dept. of Biochemistry; and Luwen Zhang, Nebraska Center for Virology and School of Biological Sciences

Academic Advisor: TBA

Website: TBA

The microbiology major offers educational opportunities in various areas of Microbiology leading to a Bachelor of Science degree in microbiology. The training offered is suitable for a professional career in microbiology, which may lead to employment in the food industry, clinical microbiology, biotechnology, and pharmaceuticals; or federal agencies such as the Food and Drug Administration, US Department of Agriculture, US Public Health Service, and Environmental Protection Agency. The program is also suitable as preparation for graduate studies leading to academic careers and professional careers in medicine, dentistry, veterinary medicine, pharmacy, and health-related fields.

Students interested in majoring in microbiology are advised to make an appointment with the Academic Advisor.

Requirements for the Major in Microbiology:

Required Microbiology Courses (13-14 hours)

BIOS 312 Fundamentals of Microbiology

BIOS 313 Molecular Microbiology Laboratory (2 hours) or BIOS314 Microbiology Laboratory (1 hour)

BIOS 440 Microbial Physiology

BIOS 420 Molecular Genetics
BIOS 443 Immunology

Elective microbiology courses (12-18 hours, a minimum of 12 hours at the 300 level or above)

AGRO 469 Soil Microbiology
BIOS 302 Advanced Cell Structure and Function
BIOS 326 Biology of Viruses
BIOS 477 Bioinformatics and Molecular Evolution
BIOS 487 Field Parasitology
BIOS 479 Field Epidemiology
BIOS 497 Environmental Microbiology
BIOS 444 Geomicrobiology
FDST 406 Food Microbiology
FDST 455 Microbiology of Fermented Foods
FDST455L Microbiology of Fermented Foods Laboratory
PLPT 370 Biology of Fungi
VBMS 424 Basic Molecular Infectious Diseases
VBMS 441 Pathogenic Microbiology

Within the same subject matter area, students may request substitution for an elective course.

Note: BIOS 207 Ecology and Evolution is also recommended for students specializing in Applied, Environmental, and Plant Microbiology or who are interested in epidemiology.

Additional required courses

Natural Sciences Requirements (45-46 hours)
BIOS 102 Cell Structure and Function
BIOS 103 Organismic Biology
BIOS 206 Genetics
CHEM 109, 110 General Chemistry I and II (or 113, 114, 116)
CHEM 251, 253 Organic Chemistry and Lab (or 261, 263)
MATH 106 Analytical Geometry and Calculus I
STAT 218 Introduction to Statistics (or one of EDPS 459, ECON 215, STAT 380)
PHYS 141, 142 Elementary General Physics I and II (or 211, 212)
BIOC 431 Biomolecules and Metabolism (or 321, 321L)

College Distribution Requirements (19-25 hours)

ACE Learning Outcomes (30 hours)

Pass/No Pass. Students majoring in microbiology may not take any of the courses required for the major in microbiology as Pass/No Pass except for courses involving independent study, research, and seminars.

Program Assessment: To gauge the effectiveness of the program, majors within their senior year will be required to complete selected assessment activities.

Results of participation in this assessment activity will in no way impact a student's GPA or graduation.

Students concerned about their preparation for college-level biology should take BIOS 101 and 101L prior to BIOS 102. Please consult your adviser if in doubt.

Appendix 4: Sample Microbiology Course Schedule Planning Document (Arts and Sciences) Freshman Year	
Fall Semester (14 hrs): BIOS 102 Cell Structure & Function (ACE4, 4 hrs) CHEM 109 or CHEM 113 Gen. Chem. I (ACE4, 4 hrs) 2 CDR or ACE requirements	Spring Semester (16 hrs): BIOS103 Organismic Biology (ACE4, 4 hrs) CHEM 110 or CHEM 114 Gen. Chem. II (ACE4, 4 hrs) MATH 106 Analytical Geometry and Calculus I (ACE3, 5 hrs) 1 CDR or ACE requirements
Sophomore Year	
Fall Semester (14-17 hrs): BIOS 206 Genetics (4 hrs) CHEM 251 Organic Chem.I & CHEM 253 Organic Chemistry Lab (4 hrs) 2-3 CDR or ACE requirements	Spring Semester (14-17 hrs): *CHEM 252 Organic Chem.II & CHEM 254 Organic Chemistry Lab (4 hrs) PHYS 141 Gen. Physics I (ACE4, 4 hrs) STAT 218 Introduction to Statistics (ACE3, 3 hrs) 1-2 CDR or ACE requirements
Junior Year	
Fall Semester (15 hrs): BIOS 312 & 314 Microbiology (4 hrs) PHYS 142 Gen. Physics II (5 hrs) 2 CDR or ACE requirements	Spring Semester (14-17 hrs): *BIOC 431 Biomolecules and Metabolism (4 hrs) BIOS 326 Biology of viruses (3 hrs) BIOS385 Parasitology (3 hrs) BIOS 498 Undergrad. Research (1 hr) 1-2 CDR or ACE requirement
Senior Year	
Fall Semester (13-16 hrs): BIOS 440 Microbial Physiology (3 hrs) BIOS 443 Immunology (3 hrs) BIOS 498 Undergrad. Research (1 hr) 2-3 CDR or ACE requirements or additional microbiology electives	Spring Semester (16 hrs): BIOS 420 Molecular Genetics (3 hrs) VBMS 441 Pathogenic Microbiology (3 hrs) BIOS 498 Undergrad. Research (1 hr) 3 CDR or ACE requirements or additional microbiology electives

Note: *CHEM 252 Organic Chem.II & CHEM 254 & Organic Chemistry Lab (4 hrs) only required for students who select BIOC431 Biomolecules and metabolism

ACE Requirements also needed (24 hrs.)		College Distribution Requirements (CDR) also needed:
ACE1		CDR A - Written communication (3 hrs) to be selected from ACE1 approved courses
ACE2		CDR C - Humanities (6 hrs) from two different departments, select from classics*, english, history, modern languages and literatures*, philosophy, and religious studies* <i>*Language courses numbered 210 or below apply only for the foreign language requirement</i>
ACE5		CDR D - Social Sciences (3 hrs) select from anthropology, communication studies, geography, political sciences, psychology or sociology
ACE6		CDR E - Languages Classical and Modern (0-6 hrs, can be up to 16 hrs for students who place in SPAN101) Fulfilled by completion of the 6 hr second year sequence in a single foreign language in one of the following departments: Classics and religious studies, modern languages and literatures, or anthropology.
ACE7		
ACE8		
ACE9		
ACE10	Capstone course	

Item XI. Discussion of the proposed College of Arts & Sciences Strategic Plan and opportunity to ask questions of the Dean.

**Strategic Plan
College of Arts and Sciences
University of Nebraska-Lincoln
2010-2015**

In this strategic plan we identify five goals, consistent with our mission.

Mission: UNL's College of Arts and Sciences empowers students with a world-class education befitting the State of Nebraska's comprehensive, land-grant, research university. Our teaching in the humanities and social and natural sciences gives students the knowledge and skills they need to succeed in an increasingly complex, diverse and interconnected world. We are equally committed to increasing knowledge through research endeavors and creative activities at the leading edge of human experience, and our expertise in service and outreach furthers the interests of Nebraska, the nation, and the world. Our guiding principle is that teaching, research, and service are inextricably intertwined, enhancing our ability to provide an outstanding education.

For each goal we provide a rationale, objectives and strategies to achieve these objectives. We are committed to an uncompromising pursuit of excellence by focusing on areas of existing and emerging strength. We will provide benchmarks and action plans in relation to these goals in separate documents.

Goals:

1. Enhance Undergraduate Education: As a public land-grant university, undergraduate education is the cornerstone of what we do. The College of Arts and Sciences provides almost half of the credit hours taught at UNL and all students at UNL, regardless of their college, take A&S courses. A&S is the largest college on campus with students able to choose from over fifty major and minor programs of study.

Objective 1.1: Prioritize bringing cutting-edge research into the curriculum, especially in introductory classes.

- Reward departments that have tenured and tenure-track faculty teach introductory courses.
- Give higher priority to hires that lead to tenured and tenure-track faculty in introductory courses.

Objective 1.2: Continue to deliver an up-to-date curriculum of high quality.

- Develop and implement a common life sciences curriculum.
- Encourage and enable submission of curriculum innovation proposals, especially in areas of diversity and global engagement.
- Work with Undergraduate Studies to enhance instruction in courses with large enrollment.
- Ensure students can complete their degrees in a timely manner through hiring of faculty in areas of high need.
- Work to enhance the ACE program, including assessment and more ACE certified courses in the college.
- Encourage and enable students to pursue minors and double majors.
- Facilitate interdisciplinary teaching.

Objective 1.3: Increase the number of students taking advantage of experiential learning opportunities.

- Promote UCARE participation and submission of grants that include undergraduate research experiences.
- Increase support for study abroad and international experiences.
- Encourage and enhance service-learning opportunities, internships, and civic engagement through community service.
- Encourage the use of real-world problems in the curriculum.

Objective 1.4: Enhance services provided to existing students and enhance the recruiting of new students.

- Enhance the advising of pre-professional students.
- Obtain better space for the Advising Center.
- Advocate at the university level for better evaluation of transfer credit, an electronic file system for advising, and for midterm reporting of D/F grades.
- Enhance the college web site.
- Increase the use of social media to interact with existing students and recruit new students.
- Work with other units on campus to develop middle/high school programs designed to attract high achieving students and students from underrepresented groups.

2. Increase Research and Creative Activities: An equally high priority of UNL is excellence in research and creative activity (hereafter referred to as simply research). Research is a defining feature of UNL as the flagship university of the state and as an AAU and Big Ten institution. Research advances knowledge and often leads to economic and social development. Cutting-edge research is increasingly done at the boundaries and interfaces of disciplines in efforts that answer large, complex and important questions.

Objective 2.1: Promote and support faculty research.

- Use internal and external measures to identify areas of strength and potential strength.
- Use the strategic planning process to invest in areas that provide the greatest potential for excellence.
- Allocate a significant portion of tenure-track positions to hires that enhance interdisciplinary teaching and research.
- Encourage and enable interdisciplinary research groups.
- Encourage and enable cooperation across departments and colleges.
- Enhance and refine the college's interdisciplinary grant program.

Objective 2.2 Enhance research infrastructure.

- Work with VCR to prioritize areas of most critical need.
- Encourage and enable interdisciplinary centers.
- Support and contribute to core facilities that benefit research in the college, especially interdisciplinary research.
- Encourage and promote faculty research collaborations with Innovation Campus.

Objective 2.3: Build upon the strength of our nationally recognized graduate programs.

- Use internal and external measures to identify the best programs in the college and programs with the potential to be among the best.
- Use the strategic planning process to develop plans for enhancement of programs strong or potentially strong.
- Reallocate TA and faculty lines to support programs identified as strong or potentially strong.
- Encourage and enable efforts to recruit excellent graduate students in programs identified.

3. Increase External Engagement: As the flagship university of the state and a land-grant institution, UNL engages with the citizens of Nebraska, the United States, and the world. We share our knowledge and expertise to help solve real-world problems, enhancing the education of our students and leading to better future research.

Objective 3.1: Encourage student external engagement.

- Increase service learning opportunities in courses in the college.
- Provide more scholarships for service-learning opportunities
- Encourage peer-mentoring and service learning as a way for students to give back to their communities.
- Encourage internships for students.

Objective 3.2: Encourage faculty external engagement.

- Encourage faculty working with K-12 educators.
- Encourage faculty working with government agencies and non-governmental organizations (NGOs).
- Build on student, staff and faculty local relationships with global reach
- Encourage faculty to pursue commercial applications of their research, work with industry, and to engage with Innovation Campus.

- Encourage faculty engagement with the citizens of Nebraska to illustrate the value of research and education at UNL, e.g. through the Speakers Bureau.

4. Increase Diversity: A core value of the university is diversity. It is critical that we prepare our students for an increasingly diverse Nebraska and world. This is just one of the reasons that our college motto is “Diverse paths, shared excellence”. Through diversity we achieve greater excellence and the best possible education for all students.

Objective 4.1: Increase excellence through diversity of staff and faculty.

- Work with search committees to ensure diverse pools of applicants.
- Work with faculty and staff to promote an inclusive work environment.
- Work with the ADVANCE program to recruit and retain more women faculty in STEM disciplines.
- Work to institutionalize ADVANCE initiatives to benefit all hiring, recruiting and retention.

Objective 4.2: Increase faculty and staff knowledge of ways to promote and take advantage of awareness of diverse perspectives.

- Publicize activities in the college related to diversity.
- Support efforts in college to promote diversity.
- Promote the college catch phrase: Diverse paths, shared excellence.

Objective 4.3: Increase the diversity of the student body.

- Encourage outreach to schools that do not traditionally send students to UNL at a high rate. For example, work with the Nebraska College Preparatory Academy Program and efforts to reach Native-American students.
- Promote an inclusive classroom environment.

Objective 4.4: Increase student awareness of the benefits of understanding diversity issues.

- Support the development of ACE Outcome 9 courses.
- Support the activities of student groups that promote diversity.

5. Steward resources wisely and develop new resources: As a public institution we must wisely steward our assets – people, infrastructure and financial support. We must also develop new resources.

Objective 5.1: Support faculty and staff development.

- Increase leadership opportunities for faculty, chairs and directors.
- Increase mentoring of faculty, especially associate professors.
- Create workshops to provide development opportunities for targeted groups (e.g. pre-tenure faculty, mid-career faculty, staff, etc.).
- Increase development opportunities for staff working with Staff Council.

Objective 5.2: Retain key faculty and staff.

- Reward merit through the salary process.
- Support a culture of work/life integration
- Be pro-active in retention offers.
- Nominate faculty and staff for awards, both internal and external.
- Celebrate the achievements of faculty, staff and students.
- Increase communication and morale in the college via sponsored events.

Objective 5.3: Decrease instructional costs while enhancing quality of instruction.

- Work with departments to optimize class sizes.
- Encourage departments to review curriculum to reduce inefficiencies.
- Seek and promote new modes of instruction, including technology as appropriate.
- Work with chairs to reduce reliance on temporary instructional funds.
- Align instructional funds more closely to enrollment.
- Support efforts of faculty to develop their teaching skills.

Objective 5.4: Improve educational infrastructure.

- Analyze college research and teaching space needs.
- Prioritize needs based on this analysis
- Obtain more and better space based on these priorities.

Objective 5.5: Increase giving to the College as a part of the Campaign for Nebraska.

- Increase contact with friends of the college through more Foundation hosted events and greater stewardship.
- Increase alumni and student presence on website, in *Columns*, and on social networking sites.
- Be more pro-active in working with units in the college to help them to identify, cultivate and steward their friends and potential donors.

Objective 5.6: Improve operations in the Dean's Office and unit offices.

- Finish the internal self-assessment and review (Baldrige Process) of the Dean's Office.
- Implement changes based on the review.
- Consider an external review of Dean's Office operations.
- Perform operational reviews of units, as needed.
- Consider greater use of business centers in college.