

Agenda

CALS/L&S Joint Curriculum Committee Meeting
Tuesday, February 11th, 2014, 12:00 p.m.
260 Bascom Hall

___ Randy Jackson, Chr (2014)

___ Jeri Barak, (2014)

___ Bill Bland, (2014)

___ Jack Kloppenburg, (2015)

___ Ahna Skop, (2016)

___ Susan Smith, (2016)

___ James Steele (2016)

___ Masarah Van Eyck, (2015)

CALS Ex Officio:

___ Sarah Pfatteicher

___ Phil Gonsiska

CASI Ex Officio:

___ Chris Day

Student Reps: ___ Matt Olson

___ Taylor Fritsch

UP&S Office:

___ Susan Gisler

___ Andrea Sottile

JOINT SESSION

Updates

Update from Biology Committee

PROGRAM PROPOSALS

Development Economics Certificate Proposal—A A E is proposing an undergraduate certificate focusing on international development economics.

Biocore as an Honors Program – Biocore is requesting official recognition as an honors program

CALS-ONLY SESSION

Strategic Planning

Capacity Project discussion— see the following for reference:

<http://www.learning.wisc.edu/welo2010.pdf>

<http://www.aacu.org/leap/hip.cfm>

Undergraduate Certificate in Development Economics

1. Certificate Name and Academic home

- a. Development Economics
- b. Department of Agricultural and Applied Economics (AAE), College of Agricultural and Life Sciences
- c. Faculty Director: Bradford L. Barham (AAE).
- d. Key Program Faculty, all in AAE: Jennifer Alix-Garcia; Bradford Barham; Jean-Paul Chavas; Ian Coxhead; Jeremy Foltz; Laura Schechter.

2. Intended timeline for implementation:

We hope to start enrolling students in the fall of 2014.

3. Supporting letters/memos from other academic units:

We have received letters of support from International Studies, Economics and International Business. Political Science sent an email indicating no objection. **We are still awaiting a letter of support from CALS Community and Environmental Sociology (they will meet 2/3/14 to consider our request). We requested a letter of support from the Wisconsin School of Business in August 2013 but as yet have received no response. We are now seeking support from the APCs of L&S and CALS.**

4. Governance

Governance of the certificate program will be managed by the AAE Executive Committee, which will appoint a director on a bi-annual basis. The AAE Curriculum Committee will review the organization and performance of the Certificate Program on an annual basis.

5. Purpose, Rationale, Justification

As international issues have become of greater interest among students and employers, new international certificate programs have been popping up across campus. While the existing certificate programs are all excellent, none of them emphasize economics. This is the gap we plan to fill. This certificate program will meet the demands of students who want to learn about and work on issues related to development economics.

AAE currently offers multiple courses related to development economics, with 50-100 students enrolling in each class. In the 2010-2011 and 2011-2012 academic years, AAE offered 7 distinct courses in development economics for a total of 13 course offerings. (On average each course is offered once per year.) The average number of students per course over those 13 course offerings is 78. This is evidence of the high demand for these

classes. Many of the students in these classes tell us they would like to deepen their study of these topics, evidence of the latent demand for the certificate. Given the enrollments in our existing classes, we expect that less than half (around a quarter) of the interest in our certificate would come from within AAE and more than half of the interest would come from students with majors other than AAE.

In terms of academic training, this program would offer students the opportunity to take a coherent set of courses, which are designed to build analytical and thematic depth in the field of development economics.

The currently proposed certificate is part of a series of initiatives the AAE department has undertaken recently to both increase student numbers and improve learning outcomes of students. Part of the impetus for these changes has been the departure or retirement of some faculty and the hiring of other new faculty. These initiatives include an overhaul of the graduate-level core curriculum, two new environmental economics courses offered at the 200-level targeted to an audience of freshmen and sophomores, and a new CALS undergraduate certificate in Business.

There are sufficient resources for all of these endeavors. The overhaul of the graduate curriculum has already occurred, and involves a change in curriculum, but no additional courses need to be taught. One of the new 200-level courses is a renumbering and rethinking of the syllabus of a previous 300-level course, while the other new 200-level course is taught by a new faculty member who was hired by the WID. Both the CALS Business Certificate and the Development Economics Certificate do not involve the teaching of new courses. Rather, they potentially involve slightly larger class sizes, for which we do have resources. If there are under 30 students enrolling in both certificates per year, which seems reasonable, our current faculty will be able to handle the extra advising and our current Undergraduate Student Services Coordinator will be able to handle the extra assessment. If more students enroll, the Undergraduate Student Services Coordinator could increase her current part-time status.

6. Curriculum

The certificate would require 5 courses (approximately 15 credits). In order to declare the Certificate, the student must have successfully completed AAE 215, Econ 101, or a comparable introductory economics course to expose students to the vocabulary and concepts of the economy. AP credit may also be used to satisfy this requirement. In the core, students take two (of three) courses that provide an overview to development economics (the role of markets in the economic development of nations and their people). The 3-course electives requirement allows students to tailor their remaining courses to their particular (topical or geographical) interests within the broad field of development economics, choosing at least one course with an AAE focus, and one from another disciplinary perspective. All of the courses listed below are approved, offered regularly, and unambiguously identifiable in a DARS audit. These courses may be taken in any order. (For courses which are cross-listed, the departments with which they are cross-listed are included in parentheses.)

- a. Core AAE courses: 373 (Intl St) or 374 (Intl St); 474 (Econ) – **Students must take AAE 474 and one additional course from this section.**
- b. Elective AAE Courses: 319; 350 (Agronomy, Inter-Ag, Nutr Sci); 373 (Intl St or 374 (Intl St); 462 (Econ, Intl Bus); 473 (Econ); 477 (Econ); 567 (Econ) – **Students must take one course from this section.**
- c. Elective Non-AAE Courses: **Students must take one course from this section.**
 - i. Community and Environmental Sociology: 380 (Soc, Pop Hlth), 540 (Soc, Envir St), 630 (Soc).
 - ii. Economics: 364, 464, 467, 475.
 - iii. International Business: 200, 445 (Finance).
 - iv. International Studies: 402.
 - v. Political Science: 312, 371, 376.

Students must take the one remaining course from any of those listed above in a, b or c.

All departments whose courses are listed above have provided a memo stating that they have space and will communicate with us about any changes in their course offerings. We are also providing memos from L&S and the Business School.

7. Overlap Limits

A student may combine this certificate with any other certificate and/or major. However, students with a major in Agricultural & Applied Economics, a major in Economics, or a major in the Politics and Policy in the Global Economy option in International Studies may count no more than six credits toward both their major requirements and the requirements for the Certificate in Development Economics.

8. Assessment and Program Review

The major learning goals of the Certificate in Development Economics are to help students in the certificate program build a solid foundation of analytic skills that will enable them to better understand the challenges created by world poverty. They will better understand how economics can be used to develop policies to address the problems of poverty and the impact of globalization on growth and development. More specifically, learning goals include understanding and being able to explain:

1. The fundamental distinction between economic growth and economic development.
2. The impact of globalization on growth and development.
3. The main results from the empirical growth literature
4. Why market-oriented reforms often spawn strong resistance.
5. The distinction between income inequality and poverty.
6. The complex relationship between population growth and economic growth.

7. The concept of investment in human capital and its contribution to growth.
8. The bi-directional nature of improved health and economic growth.
9. The major types of investment for growth and what influences their efficiency.
10. The implications of foreign investment for a nation's economy.
11. The causes and consequences of financial panics.
12. The controversies surrounding foreign aid including its motivations and impacts.
13. The issues in the debate about food self-sufficiency and food security.
14. The various forms of land tenure in developing countries and the effect of property rights on incentives in agriculture.
15. The fundamental concept of comparative advantage as the basis for gains from trade, as well as its major implications.
16. The causes and cures of Dutch disease, which has turned many a commodity boom into a development disaster.
17. The premises, objectives, and policy instruments defining import substitution as a strategy for industrialization.
18. The main features of an outward-looking export-led strategy of industrialization.
19. Evaluate the argument that many of the problems facing developing countries today are legacies of the colonial era
20. Discuss the importance of institutions like property rights and economic mobility in economic development
21. Identify the impacts of labor migration on developing countries
22. Define remittances and explain their impacts on development
23. Articulate an argument for why child labor and gender discrimination limit economic development
24. Describe the environmental challenges posed by economic development
25. Discuss how Randomized Control Trials can be used to evaluate development policies and discuss their limitations

Assessment of the program will be conducted by the AAE Curriculum Committee. In order to evaluate student learning, the Committee will use course-embedded assessment in the one required core course, AAE 474. Students will demonstrate their learning through reaction papers, assignments and exams. The Committee will also use the student comments from course evaluations of the courses offered in the Certificate, as well as the evaluation themselves.

The Committee will annually review the number of students applying for the Certificate and the number of students requesting course exceptions and substitutions. The Committee will conduct exit interviews with students who have completed the Certificate to evaluate the success of the program and determine if curricular changes are needed. The exit interview will be sent to students electronically, and they will have an option to reply by email or discuss in person with the Undergraduate Student Services Coordinator. A draft of the exit interview is included at the end of this document.

AAE understands that the certificate program would need a formal review five years after its introduction. After that, there would be periodic reviews at a frequency to be

determined in part by the efficacy of the program at the five year point and concerns raised during the review.

9. Admission requirements

For admittance to the Certificate in Development Economics, students must be enrolled undergraduates at the University of Wisconsin-Madison and must have successfully completed AAE 215 or Econ 101, or the equivalent (this would include transfer credit or AP credit). Students will declare the Certificate to be reviewed by the department of AAE and then it will be routed through 116 Ag Hall for posting to the student's record.

10. Enrollment, Progress, and Certificate Completion

We anticipate that there will be approximately 10 students per year enrolling in the certificate program. We came to this number since it is approximately 5% of the students enrolled in AAE 373, 374, 474 and the other AAE electives in each year and we think that 5% of those students are passionate enough about Development Economics to want to sign up for the certificate. For example, AAE 374 and 474 average 60 students per year. AAE 350, one of the elective courses, has several hundred students each time it is taught. Again, going by the enrollments in our existing classes, which seem to be approximately a quarter AAE students and three quarters students from other majors, we would expect approximately 2 of the 10 students each year to be AAE majors and 8 to be majors in other departments.

The core courses of AAE 373, 374, and 474 currently tend to have 5-20 spots open each time they are taught. If we find that this certificate increases enrollments by a lot, we have access to teaching assistants and could potentially increase enrollments in the core courses. Professors are available to offer all of the courses at least once per year. We could potentially offer one of the classes twice per year if the demand is high enough. This might be in summer or as a temporary base overload assignment to faculty from our own or other units (this latter policy limitation is currently under review as part of the Educational Innovation Initiative). AAE 373 has been offered less regularly recently because of professorial leaves and temporary governance assignments. By 2013, offering it annually will again be feasible.

None of these courses rely on the certificate to be held. Their current enrollments are sufficiently large to sustain their value to students. So, if enrollments in the certificate program are lower than we expect, this will not be problematic for our department. Once the certificate program is established, we would expect to have 10 students complete the Certificate each year.

11. Advising and Exceptions/Substitutions

Primary advising for the certificate program will be handled by the Certificate Faculty Director and the AAE Undergraduate Student Services Coordinator. As we anticipate 10 students per year will declare the Certificate, the advising load should not increase

substantially. If the number of students declaring the Certificate is larger than anticipated, the Undergraduate Student Services Coordinator is currently part-time and could increase her appointment to handle more students. Students in the Certificate will meet with the AAE Undergraduate Students Services Coordinator for advising. The coordinator will review the students' DARS to evaluate whether the Certificate will hinder the student's time to degree.

For AAE and Econ majors, the Development Certificate program will align readily with their requirements. More than 2/3 of AAE's certificate courses in globalization and international development are currently cross-listed with economics. The certificate will also provide a path for AAE majors to demonstrate their curricular emphasis on development economics, since the AAE concentrations are not transcriptable.

The requirements of this certificate will also align nicely with Community and Environmental Sociology, Environmental Studies, International Business, International Studies (especially the "Politics and Policy in the Global Economy" track), Political Science, Social Welfare/Work, Sociology, and the various Area Studies majors. Many of the students who currently take the proposed core classes are majors in these different departments. Students from these fields, with an interest in issues related to poverty, wealth, and well-being, would do well to bolster their understanding of the role of the economy in shaping the issues and activities of their chosen field. This certificate will also serve as an alternative to a second major for those students interested in economic development who don't have the space in their studies to complete a full AAE major.

The certificate will not hinder time to degree for those students who are majors in AAE, ABM, C&E Sociology, Economics, International Business, International Studies, Political Science, and Sociology. The 5 course requirement, the potential to take up to 6 credits outside of AAE, and the fact that so many of the courses listed are cross-listed would make it an uncommon issue. All students declaring the Certificate will have to meet with the AAE Undergraduate Coordinator to go over their academic plan and ensure that they will be able to complete the Certificate in a timely manner. At the end of this document we attach four sample four-year plans for students enrolling in this certificate with majors in AAE, Community and Environmental Sociology, International Studies, and Political Science.

Exceptions and substitutions will be approved by the Certificate Director and the SPAC form will be filled out by the Undergraduate Student Services Coordinator. The additional workload should not be a problem for any of the parties involved. The goal of the program is to have no more than 10% of the students require an exception in order to complete the certificate. Looking at trends in the actual number of students requesting exceptions will be part of our assessment plan.

12. Enrollment of University Special Students

We do not plan to make special students eligible for the certificate.

13. Resources and Ongoing Commitment

The primary resources will be the Faculty Program Director and the Undergraduate Advisor. We anticipate a small increase in their workload, and this will be accommodated with existing departmental staffing resources. Faculty and teaching assistants teaching the core and elective courses may experience a slight increase in demands from students enrolled in the Certificate program. That will be monitored, and if it becomes a significant concern, then AAE will seek additional staffing resources (e.g., graduate student assistantship) to help ease some of the ‘office hour’ time and networking assistance being sought by the students.

Appendix 1: Exit Interview

Certificate in Development Economics

Exit Interview

1. In what year of undergraduate study did you declare a Certificate in Development Economics? Include years you attended college somewhere else.

☐ First year ☐ Second year ☐ Third year ☐ Fourth year or later

2. Why did you choose a Certificate in Development Economics?

3. Please indicate your Major(s) and any other Certificates:

4. For the core course AAE 474:

- a. The course helped me understand how economics can be used to develop policies to address the problems of poverty and the impact of globalization on growth and development.

1=strongly disagree 2=disagree 3=neutral 4=agree 5=strongly agree

- b. This course improved my ability to evaluate economic arguments and/or policy proposals

1=strongly disagree 2=disagree 3=neutral 4=agree 5=strongly agree

5. For the core courses AAE 373 or AAE 374 (Please note which course you took as part of the core requirement):

a. The course helped me understand how economics can be used to develop policies to address the problems of poverty and the impact of globalization on growth and development.

1=strongly disagree 2=disagree 3=neutral 4=agree 5=strongly agree

b. This course improved my ability to evaluate economic arguments and/or policy proposals

1=strongly disagree 2=disagree 3=neutral 4=agree 5=strongly agree

6. Please rate the Development Economics Certificate. Overall, how do you rate:

	Excellent	Very Good	Good	Fair	Poor
a. The overall quality of the courses you took for the Development Economics Certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. The quality of instruction in Development Economics Certificate courses?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. The availability of advising for the certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. The quality of advising you received for the certificate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Do you have plans for graduate study?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

- | | | |
|--|--------------------------|--------------------------------|
| a. No plans for graduate study | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Plan to go to a graduate program
Within the next three years | <input type="checkbox"/> | <input type="checkbox"/> |
| c. <u>Uncertain of future plans for graduate study</u> | <input type="checkbox"/> | <input type="checkbox"/> _____ |

8. Have you found employment following graduation? ____ Yes ____ No

If yes,

8a. Please describe where you will be working and what you will be doing:

- 8b. Do you feel your Certificate in Development Economics helped you secure employment?

____ A lot ____ Somewhat ____ A little ____ Not at all

9. What were the best and worst aspects of the Development Economics Certificate Program?

Appendix 2: Sample Four-Year Plans

Certificate in Development Economics and AAE Major - Sample Four-Year Plan

Year	Fall Semester Sample Courses	Credits	Fall Semester Actual Courses	Credits	Spring Semester Sample Courses	Credits	Spring Semester Actual Courses	Credits
1	Math 211 or 221 Comm-A Chemistry First-Year Seminar	5 3 4-5 1 13-14			Comm-B AAE 215 or Econ 101 ¹ CALS Science Humanities Elective Elective	3 3-4 3 3 15-16		
2	Econ 102 Statistics CALS Biological Science Ethnic Studies AAE Concentration	3 3 3 3 3 15			Econ 301 Certificate Core ² CALS Biological Science International Studies Elective	4 3 3 3 3 16		
3	AAE Concentration Econ 302 Certificate Core Elective	3 4 3 6 16			AAE Concentration Certificate Elective ² CALS Science Elective	6 3 3 3 15		
4	AAE Concentration CALS Science Certificate Elective Electives	3 3 3 6 15			AAE Capstone Certificate Elective Electives	3 3 9 15		

University General Education and CALS Requirements

AAE Requirements

Certificate in Development Economics Requirements

Certificate in Development Economics and Community & Environmental Sociology Major - Sample Four-Year Plan

Year	Fall Semester Sample Courses	Credits	Fall Semester Actual Courses	Credits	Spring Semester Sample Courses	Credits	Spring Semester Actual Courses	Credits
1	C&E SOC 140 COMM-A Chemistry 108 First-Year Seminar Elective	3 3 5 1 3 15			Ethnic Studies CALS Science C&E SOC Elective QR-A Elective	3 3 3 3 3 15		
2	C&E SOC 357 (or 358) C&E SOC Elective AAE 215 or Econ 101 ³ CALS Biological Science Elective	3 3 3-4 3 3 15-16			C&E SOC Elective CALS Biological Science Certificate Core Humanities Elective Additional Electives	3 3 3 3 3 15		
3	C&E SOC 360 (or 359) C&E SOC Elective Certificate Core Humanities Elective CALS Science	4 3 3 3 3 16			C&E SOC 475 Certificate Elective International Studies Electives	3 3 3 6 15		
4	C&E SOC 500 Certificate Elective COMM-B Electives	3 3 3-4 6 15-16			Certificate Elective Electives	3 12 15		

University General Education and CALS Requirements

Community & Environmental Sociology Requirements

Certificate in Development Economics Requirements

³ Can be used to satisfy QR-B

Certificate in Development Economics and International Studies Major - Sample Four-Year Plan

Year	Fall Semester Sample Courses	Credits	Fall Semester Actual Courses	Credits	Spring Semester Sample Courses	Credits	Spring Semester Actual Courses	Credits
1	Int'l Studies 101 Comm-A Foreign Language QR-A	4 3 4 3-4 14-15			Ethnic Studies Econ 101 (QR-B) Foreign Language Natural Sciences Int'l Studies - Elective	3 4 3 3 16		
2	Econ 102 Foreign Language Comm-B Certificate Core ⁴	3 4 3-4 3 13-14			Int'l Studies – Area Studies ⁵ Breadth – Literature Int'l Studies Issues/Electives Foreign Language	4 3 3 4 16		
3	Int'l Studies-Track Core Int'l Studies Issues/Electives Breadth - Literature Foreign Language Certificate Elective ⁴	3 3 3 4 3 16			Int'l Studies-Track Core ⁵ Natural Sciences Certificate Core Breadth – Humanities Int'l Studies Issues/Electives	3 3-4 3 3 3 15-16		
4	Int'l Studies Issues/Electives Natural Sciences Certificate Elective Elective	6 3 3 3 15			Int'l Studies Issues/Electives Natural Sciences Certificate Elective Elective	6 3 3 3 15		

University General Education and L&S Requirements

International Studies Requirements

Certificate in Development Economics Requirements

⁴ Can be used to satisfy Int'l Studies Issues or elective requirement

⁵ Can be used to satisfy Social Sciences breadth requirement

Certificate in Development Economics and Political Science Major - Sample Four-Year Plan

Year	Fall Semester Sample Courses	Credits	Fall Semester Actual Courses	Credits	Spring Semester Sample Courses	Credits	Spring Semester Actual Courses	Credits
1	Political Science-Int. Relat. ⁶ Comm-A Foreign Language QR-A	3-4 3 4 3-4 13-15			Ethnic Studies AAE 215 or Econ 101(QR-B) ⁶ Foreign Language Natural Sciences Political Science-Theory	3 3-4 4 3 3-4 16-18		
2	Political Science-Am Gov't Foreign Language Comm-B Certificate Core	3-4 4 3-4 3 13-15			Political Science-Comp Gov't ⁶ Breadth – Literature Political Science Electives Foreign Language	3-4 3 3-4 4 13-15		
3	Breadth - Literature Political Science Electives ⁶ Certificate Elective Natural Sciences Electives	3 3-4 3 3 3 15-16			Political Science Electives Natural Sciences Certificate Core Breadth – Humanities Electives	3-4 3 3 3 3 15-16		
4	Political Science Electives Certificate Elective Breadth – Humanities Electives	6-8 3 3 3 15-17			Political Science Electives Natural Sciences Certificate Elective Electives	3-4 3 3 6 15-16		

University General Education and L&S Requirements

Political Science Requirements

Certificate in Development Economics Requirements

⁶ Can be used to satisfy Social Science Breadth



Date: December 17, 2013

To: Ian Coxhead, Chair, Agricultural and Applied Economics, UW-Madison,

From: Ananth Seshadri, Chair, Department of Economics, UW-Madison

Re: AAE Certificate in Development Economics

Dear Ian:

Please accept my sincere apologies for this prolonged delay. I am delighted to let you know that the Economics Department is supportive of your newly proposed "Certificate in Development Economics". We will have space for students who sign up for the certificate and in the event there are any changes in our offerings, we will be sure to let you know.

Best Regards,

Ananth Seshadri

Professor

Department of Economics

International UNIVERSITY OF WISCONSIN MADISON MAJOR Studies

Ian Coxhead
Chair, Department of Agricultural and Applied Economics
427 Lorch Street, Taylor Hall
Madison, WI 53706-1503

30 October 2013

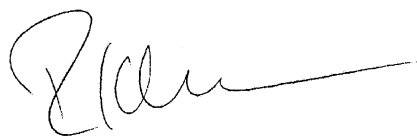
Dear Professor Coxhead,

In our meeting on 9 October 2013, the steering committee of the International Studies Major offered to endorse your department's proposed new certificate in Globalization and Development Economics.

The committee expressed two conditions for its support of the certificate. The first is that the section on Overlap Limits include our major's option in Politics and Policy in the Global Economy, in order to avoid duplication. The second is that we would greatly appreciate the inclusion of Professor Stephen Young's IS 402 course, Global Poverty and Inequality, as a possible elective.

Many thanks for your request, and best of luck seeing the certificate program through to its inception. It promises to be a useful addition to campus programs on internationalization.

Sincerely,



Richard C. Keller
Director, International Studies Major

educating the next generation of global leaders

226 INGRAHAM HALL • 1155 OBSERVATORY DRIVE • MADISON, WI 53706
t 608.263.6916 • f 608.265.7817 • w ISMAJOR.WISC.EDU



August 28, 2013

Professor Ian Coxhead
CALS

Dear Ian,

I am writing on behalf of the Department of Management and Human Resources and the Department of International Business in the Wisconsin School of Business. Your proposal for an undergraduate certificate in Globalization and Development Economics has been reviewed. I am delighted to offer support for the proposed certificate. It looks like a great opportunity for UW-Madison students!

Good luck with the final development and introduction of the new certificate.

Sincerely,

A handwritten signature in blue ink that reads 'Randall B. Dunham'.

Randall B. Dunham
Chair of Management and Human Resources
Chair of International Business

Wisconsin School of Business
Center for International Business Education and Research (CIBER)
Grainger Hall 975 University Avenue Madison, Wisconsin 53706-1323
608-263-7682 Fax 608-263-0477



MEMORANDUM

TO: Dean John Karl Scholz, L&S, and Dean Kathryn VandenBosch, CALS

FROM: Jeff Hardin, Faculty Director and Janet Batzli, Associate Director, Biology Core Curriculum

CC: Jennifer Kaufmann-Buhler (L&S Honors), Elaine Klein (L&S), Jocelyn Milner (APIR), Christopher Olsen (VPTL), Sarah Pfatteicher (CALS), Sissel Schroeder (L&S Honors), Eric Wilcots (L&S)

DATE: February 4, 2014

RE: Request for endorsement of the Biocore Honors Proposal

With full support from the L&S Faculty Honors Committee, University Honors Committee, and both CALS and L&S Honors Programs, we submit the Biocore Honors Proposal for your review.

In summary, we propose:

- 1.) Biocore be officially recognized as an 'H' Honors Program
- 2.) Administrative recognition of all students enrolled in Biocore as honors students
- 3.) Transcript notation of "Biology Core Curriculum Honors" for students who complete the Biocore four lecture course sequence of 381, 383, 485, and 587 and at least two of the three Biocore lab courses (382, 384, 486), achieve a B grade or higher in all Biocore courses, and have a minimum cumulative GPA of 3.3 at the time of graduation.

We request endorsement of this proposal from the College of Letters and Science and College of Agricultural and Life Science.

Please see the following documents:

- A. Biocore Honors Proposal with support letters from students and faculty (p. 2)
- B. L&S Honors Program letter of support (p. 25)
- C. CALS Honors Program letter of support (p. 27)
- D. Faculty Honors Committee endorsement memo (p. 28)
- E. University Honors Committee endorsement memo (p. 29)



MEMORANDUM

TO: Sissel Schroeder, Letters & Science Faculty Honors Committee

FROM: Jeff Hardin, Faculty Director, and Janet Batzli, Associate Director, Biology Core Curriculum

CC: Elaine Klein (L&S), Jocelyn Milner (APIR), Christopher Olsen (VPTL), Sarah Pfatteicher (CALS), Jennifer Kaufmann-Buhler (L&S Honors), Eric Wilcots (L&S)

DATE: November 27, 2013 (revised February 4, 2014)

RE: Biocore request for official recognition as H Honors Program

With full endorsement from the Biocore Executive Committee, we request approval for the following changes to the Biocore Program:

- 1.) Official recognition of Biocore as an 'H' Honors Program
- 2.) Administrative recognition of all students enrolled in Biocore as honors students
- 3.) Transcript notation of "Biology Core Curriculum Honors" for students' who complete the Biocore four-lecture sequence of 381, 383, 485, and 587 and at least two of the three Biocore lab courses (382, 384, 486), achieve a B grade or higher in all Biocore courses, and have a minimum cumulative GPA of 3.3 at the time of graduation.

Context and Proposal

In Spring 2013, all Biocore courses were changed from 300 level to 300-500 level, with progressively higher numbers in each semester, to accurately reflect the learning progression from intermediate to advanced courses. In addition, each course number was changed so all numbers had an "8" as the middle digit, thereby indicating them as automatic honors courses¹. All course numbers were approved through regular governance processes. The new Biocore course numbers are to be implemented for the first time in Spring 2014. In November 2013, during spring registration, Biocore was alerted of current institutional policy that only honors students are allowed to register for middle digit '8' H Honors courses. Although all Biocore students are doing honors coursework, approximately one-half are *not* in an Honors program and are, therefore, considered non-honors students. We propose that students who are admitted to Biocore be automatically admitted into the newly designated cross-college Biocore Honors Program upon enrollment, and be administratively recognized as honors students by way of a Biocore honors student group. Furthermore, we propose a "Biology Core Curriculum Honors" transcript notation for students who have completed the Biocore sequence of at least 16 credits, achieved a B grade or higher in all Biocore courses, and have a minimum cumulative GPA of 3.3 at the time of graduation. In support of this proposal we provide letters of support from current and former recent Biocore students and faculty (Appendix 1).

¹ New course numbers (lecture/lab) are Biocore 381/382 (Ecology Genetics and Evolution), 383/384 (Cell Biology), 485/486 (Organismal Biology), 587 (Biological Interactions). Old course numbers for reference are Biocore 301/302 (Ecology, Genetics and Evolution), 303/304 (Cell Biology), 323/324 (Organismal Biology), 333 (Biological Interactions).

Background

The Biocore program was founded in 1967 as an integrative cross-college biology program to provide the highest quality instruction possible for undergraduate biological science students from across campus (Appendix 2). From its inception, Biocore embodied all of the qualities of an honors program: small class size, high faculty/staff instructor to student ratio, emphasis on research and scientific communication through written and oral media, and content focused on foundational and emerging topics drawn from research and primary literature. Indeed, the creation of Biocore was in many senses in direct response to requests from students for rigorous, honors experiences in the biological sciences across the campus. Although the program has changed and evolved over its more than 45-year history, the basic goals, philosophy, and program structure remain the same. In the 2001 Biocore Program Review, the committee came to the conclusion that “Biocore is the sort of program that distinguishes excellent universities from good universities” (see Appendix 3). We believe the same qualities of excellence that distinguish Biocore as a significant asset to the University also distinguish it as an Honors program.

Defining Honors

One of the key questions related to Biocore as an Honors program is the definition of Honors itself across the University. It is our understanding that “honors” at UW Madison is not strictly defined, but rather organically constituted by qualities of courses and learning experiences that promote deep and extended academic exploration and discovery. UW Madison students best articulated these qualities in the 1958 Founding Petition² for the Letters and Science (L&S) Honors program. The list below was excerpted from the 1958 Founding Petition and describes the qualities of an Honors experience:

- "emphasizing an improved quality of work and an intelligent, analytical approach to the subject matter"
- "beyond mere memorizing and to spend much more time working with an understanding the ideas that are basic to their fields of knowledge"
- "delve more deeply into the entire subject matter of their particular field" and "to handle the independent asking and answering of questions which is the only way to a critical understanding of any subject"
- "enables those students with intensive interest in a subject to probe beyond the attainment requirements of the course".

Honors only courses are a subset of the honors experience, fulfilling the qualities above and, additionally, incorporate the following characteristics outlined on the L&S Honors website:

- Reserved for honors students only.
- Small courses (usually 20 students or fewer) or special discussion sections, facilitated by a professor, that are attached to a larger class.
- Taught by a faculty member who is an expert in the subject matter of the course.
- Designed to challenge students to actively participate; hence, the course content is often shaped by students' questions and interests.

² The Founding Petition for the L&S Honors program (1958) <http://www.honors.ls.wisc.edu/SiteContent.aspx?prev=32&id=79> defines the dimensions of honors coursework requested by students. Quotes excerpted from the Founding Petition are bolded and in quotes throughout the document.

- Characterized by discussion and interactive learning, rather than passive experiences (e.g., listening and note-taking).
- Automatic honors courses, and consequently one way to satisfy the HLA degree requirements.

The courses and experiences that constitute the Biocore program meet all of the qualities of an honors experience as outlined in the Founding Petition, and meet most of the generally agreed upon aspects of *honors only* courses. Below we describe how Biocore provides an honors experience in relatively large (80-120) enrollment courses, and actively involves faculty and instructional academic staff to provide students the individualized attention typical of a traditional small honors course.

Biocore as an Honors Program

Students

Biocore students come from across campus, primarily from L&S, CALS, and Engineering. Students typically major in one or more of 35 different biological science majors, including Biology, Biochemistry, Biomedical Engineering, Genetics, and Zoology. Approximately 20% of Biocore students double major in another science, social science or humanities. Students are admitted to the program through an application process. General criteria for admittance include completion of General Chemistry (Chem 104, 109 or 115) and first semester Calculus (Math 221) with a B grade or better. Admitted students enter into a cohort of approximately 120 students, most of whom are sophomores. All students, regardless of whether they are honors or non-honors students, earn an H on their transcript for each Biocore course in recognition of completion of honors level work. Of the 120 students that begin, approximately 85 complete all four lecture courses and two of the three lab courses. Biocore students are highly motivated, talented, and situated within a supportive learning community.

Curriculum Structure

Students take the four semesters of Biocore in sequence. Each cohort moves together through four semesters of lecture and laboratory curriculum, beginning with introductory to intermediate level material in the first two semesters, and then progressing to intermediate and advanced level material in the third and fourth semesters. Course expectations, regardless of level, are high and consistent with standards for honors coursework described by the L&S Honors program. Biocore culminates in a capstone course (Biocore 587, formerly 333) that helps students to synthesize the concepts and skills learned through the previous three semesters and apply them in a new context through the study of primary literature.

Course # (Old Course #) Course Title (credits)	Course # (Old Course #) Course Title (credits)
381 (301) Evolution, Ecology and Genetics (3 cr)	383 (303) Cell Biology (3 cr)
382 (302) Evolution, Ecology and Genetics lab (2 cr)	384 (304) Cell Biology lab (2 cr)
485 (323) Organismal Biology (3 cr)	587 (333) Biological Interactions <i>capstone</i> (3 cr)
486 (324) Organismal Biology lab (2 cr)	

* Biocore course syllabi can be found online at <http://www.biocore.wisc.edu/biocourses.html>.

The Biocore lecture and lab courses are intentionally integrated to help students synthesize and evaluate knowledge. The courses are fast-paced and allow students to "delve deeply into the entire subject matter of their particular field" and "to handle the independent asking and answering of questions which is the only way to a critical understanding of any subject."

Instructors

Biocore faculty and staff instructors come from across campus, from L&S, CALS, SMPH, and Engineering, and care deeply about undergraduate education. Each professor teaches roughly 5 weeks of lectures, attends other lectures in the course, and often participates in lab sections. Academic staff are PhD-level biologists and experts in teaching and learning, who have published and spoken widely in the area biology pedagogy, and who have received numerous internal and extramural grants to pursue innovation in teaching and learning. Each course is overseen by one of the participating faculty (the course chair) who serves as lead coordinator of the teaching team and mentors incoming faculty instructors. All course chairs are Fellows in the UW Teaching Academy and several have earned Chancellors Awards for Teaching Excellence. It is not merely the individual quality of each of the instructors in the sequence that sets Biocore apart; it is their interactivity. Each lecture course is truly team-taught. Faculty attend one another's class meetings, provide input and feedback on course materials and implementation—and participate in one another's class discussions with students. This means that there are *at least* 2 and often 3 Faculty Instructors plus the Associate Director and/or Academic Staff instructor, as well as 2-3 graduate teaching assistants in *every* Biocore lecture class. Given enrollment of 120 in our largest lecture class (first semester course Biocore 381 [formerly 301]), there are upwards of 7 instructors to 120 students, resulting in a ratio of ~ 1:17 in every class meeting.

Additional Programmatic Elements

Additional programmatic features of Biocore add to its qualities as an honors program, and allow it to maintain focus on its core mission as particular faculty and staff have changed over its history. These include the following:

- (1) Continuity and integration of curriculum over 4 semesters, insured by monthly course chairs meetings, weekly course preparation meetings, and coordination by full-time Biocore academic staff.
- (2) Unique process of student recruitment, including targeted emails to students who self-describe as 'biology interested'.
- (3) Selective recruitment of faculty instructors who embrace the Biocore team-teaching approach, the time-intensive nature of teaching in Biocore, and the learner-centered philosophy of education articulated in program documents: (http://www.biocore.wisc.edu/pdf/descriptions/biocore_teach_philosophy.html). The Director and Associate Director are responsible for faculty recruitment. Faculty are vetted for their commitment to the “team” concept, their willingness to submit their teaching and their teaching materials to peer review, and for their ability to maintain the continuity and high quality of instruction.
- (4) Programmatic infrastructure, including a full time Program Administrator (Carol Borcharding), who facilitates administrative functions of timetable, payroll, invoice and billing, approval for enrollment on ISIS, etc.

Lecture Courses

The four Biocore lecture courses emphasize problem-solving and development of scientific reasoning involving both foundational scientific concepts and new, emerging discoveries in biology. Exams are short answer and essay-based, and require students to make their reasoning and critical thinking clear. Although there are 80-120 students in lecture class meetings, the instructional approaches allow frequent faculty/student interaction through in-class problems and activities, in which faculty instructors circulate in the lecture hall to work with small groups of students and discuss the approach to a problem in real

time. Exams, in-class problems, and homework assignments all require students to practice and refine higher-order reasoning skills by using and integrating their knowledge of foundational concepts to make inferences, predictions, and logical conclusions. Faculty instructors have frequent contact with students during class meetings and outside of class through one-on-one or group conferencing and the student Board of Directors (student representatives that meet weekly with Faculty instructors).

A few salient examples with current faculty illustrate the depth of direct faculty involvement with students that is an integral aspect of curricular design: (1) In the fourth semester course (Biocore 587, was 333) students work with Professors Amy Moser, Anne Griep, Trina McMahon, Bill Bement and Laurence Loewe in a small group, cooperative learning format to solve problems and think critically about readings in the primary scientific literature. (2) Biocore 383 (was 303) Professors Jeff Hardin, Erik Dent and Biocore 587 Professor Amy Moser work with students who are developing molecular models of molecules central to a current research question. Such questions have emerged from these professors' research programs; models are printed on a 3D printer and used in class to delve deeply into the structure and function of the molecule. (3) In Biocore 486 (was 323) Professors Elaine Alarid and Heidi Kaeppler work with small student groups during lectures as students work on in-class activities and highlight responses that demonstrate exemplary scientific reasoning for active discussion and debate. (4) In Biocore 381 (was 301) Professors Irwin Goldman and Laurence Loewe hold 'evolution coffee hour' to discuss "all things evolution".

Laboratory Courses

The three Biocore laboratory courses directed by PhD-level academic staff instructors emphasize the processes of science and science communication (currently Drs. Janet Batzli and Michelle Harris, who are full-time biologists and experts in bioscience teaching and learning). Lab sections have a maximum of 24 students, with PhD-level academic staff instructors teaching and working directly with students in all five lab sections (i.e. they each spend 15 hours per week teaching lab sections). Students spend four hours/week in class (3 hours in lab; 1 hour of TA-led discussion), but extend that time to many more hours outside of class meetings through their research teams, planning experiments, consulting in small groups with instructors; performing ongoing, independent experiments; and communicating about their science with one another and as they prepare for oral presentations of their projects. The three-semester lab sequence is designed as a learning progression so that students, by the end, have developed the sophisticated scientific thinking and quantitative reasoning (including use of statistical tests) required to engage in independent research.

The independent research designed and performed by students in Biocore lab courses is novel and authentic, and incorporates all dimensions of the research process. Recent examples include (1) ecological research projects in the Biocore Prairie (a 13-acre restoration in the Lakeshore Nature Preserve) exploring anti-microbial properties of plants or examining the influence of fire on the plant and insect communities; (2) investigating differential expression of heat shock proteins in *C. elegans* using RNA interference and the expression of green fluorescent protein in genetically engineered worms ("glow worms"); and (3) investigating the influence of environmental stimuli on vertebrate and invertebrate organismal physiology. Research modules are updated frequently to keep pace with modern biology.

Most lab units are also specifically designed to overlap with Biocore faculty instructor's current research,

such that faculty, their postdocs, or graduate students can serve as consultants - and sometimes co-instructors - during lab periods. Students develop their thinking and reasoning skills through iterative feedback from instructors, during informal feedback presentations (i.e., in “lab meeting style”), and through written research proposals, scientific posters and papers, grant proposals, and formal presentations. These forms of communication are the backbone of the Biocore lab curriculum; all courses are writing-intensive and meet the General Education Communication B Requirement. The thinking skills required in Biocore lab courses complement students’ faculty research experiences, helping them to develop the thinking and reasoning skills necessary to generate and test novel, compelling scientific questions. Some recent examples include (1) the “worm unit” of Biocore 384 (was 304), when Professor Jeff Hardin provides individualized online consultation to research teams, and visits labs to discuss research projects one-on-one with students; (2) a microscopy lab taught by Professor Hardin; (3) a cytogenetics lab with Professor Phil Simon; and (4) a four-week quantitative genetics unit using Wisconsin Fast Plants co-taught by Emeritus Professor Paul Williams (founder of Wisconsin Fast Plants) and Dr. Janet Batzli.

Beyond Courses

In addition to the structured learning opportunities listed above, the Biocore physical location affords additional opportunities for collaborative learning experiences. Located on the third floor of Noland Hall, student are granted access to lab rooms at all times so they can work together, build a supportive network for one another, and forge learning communities with one other and with their instructors outside of course time. These activities go well beyond the 7 courses and 18 credits of H-Honors that students earn over four semesters in Biocore. Biocore also “enables those students with intensive interest in a subject to probe beyond the attainment requirements of the course.” Students are encouraged to pursue - and proactively seek - independent projects that allow them to learn new skills and concepts and to extend their “Biocore experience”. Examples include the ~ 40-50 students per year who serve as Biocore Outreach Ambassadors³, engaging with elementary and high school students and teachers to share the types of scientific reasoning skills they have learned in Biocore labs. Another ~25 students per year serve as Biocore Peer Mentors, learning important communication, facilitation and leadership skills through a one-credit seminar. They then lead small-group study sessions to help incoming Biocore students develop the critical thinking and reasoning skills they need to be successful in Biocore courses. Biocore also provides opportunities for students to explore research questions through mentored-research projects at the Biocore Prairie or physiology lab; most of these projects are part of the Sophomore Honors Research Apprenticeship or Hildale Scholarships mentored by Drs. Batzli or Harris. Some veteran Biocore students have earned independent research credits by helping to research and test new lecture and lab curricula and to assess the effects on student learning and attitudes. The Biocore “Prairie Crew”, consisting of 5-8 students, do field work each summer and work closely with Dr. Batzli and Biocore’s Lab Manager, Seth McGee, to develop small research projects that are then incorporated into the Biocore 382 (was 302) first-semester lab curriculum.

Summary

Biocore bears all of the hallmarks of an Honors program: intimate experiences with the highest quality

³ Biocore Outreach Ambassadors and Dr. Michelle Harris have earned numerous grants and awards extending Biocore learning experiences well beyond Biocore. <http://www.biocore.wisc.edu/jeffersonAwardMichelle.html>

instructional faculty; cultivation of an “intelligent, analytical approach to the subject matter” that goes far beyond mere memorizing to develop understanding of the deeper intellectual underpinnings of biology; and the development of disciplined, mature scientific discourse and the analytical tools necessary to pursue science as a way of knowing.

In light of these considerations, we propose that Biocore be officially recognized as a cross-college honors biology program, that all students who are admitted to Biocore be recognized administratively as honors students, and that their transcripts should be annotated with “Biology Core Curriculum Honors” if they complete the Biocore four lecture sequence of 381, 383, 485, and 587 and at least two of the three Biocore lab courses (382, 384, 486), achieve a B grade or higher in all Biocore courses, and have a minimum cumulative GPA of 3.3.

We thank you for your consideration.

Appendix 1 - Letters of support from program participants

Students:

Olivia Sanderfoot and Becky Reese (Biocore class of 2014)

Taylor Keding (Biocore class of 2013)

Drew Birrenkott (Biocore class of 2012)

Faculty:

Irwin Goldman (Horticulture)

November 26, 2013

To Whom It May Concern:

Over the course of our undergraduate education, we have had the opportunity to take dozens of classes, from humanities and foreign language to mathematics and natural sciences, but no curriculum has had more influence on us as students than the Biocore program. Through this program, we have truly received an honors education. Not only have we had the opportunity to study a wide variety of biological systems in both lab and lecture settings, but we have gained valuable skills that contribute to improved cross-college academic performance and prepare us to be successful after we graduate. We therefore fully support official recognition of Biocore as the cross-college honors biology program and we believe that all students admitted to Biocore should be recognized administratively as honors students. We also believe that those students who complete the program should receive formal recognition of this work on their official UW-Madison transcripts.

We believe that a liberal arts education is key to success. It is well understood that the skills developed in pursuing a multidisciplinary education are highly valuable life skills that improve the chances of success in any field. While UW-Madison strives to ensure that students here receive a well-rounded education, the L&S Honors Program in particular actively works to guarantee that their undergraduates receive a liberal arts education that is challenging, rigorous and thought provoking. Biocore exemplifies a curriculum that offers students this type of education.

As students of the Biocore program, we have explored biochemistry, genetics, cellular biology, physiology, ecology, and evolution, but we have learned so much more than a suite of biological facts. We have developed our communication skills through group work in both labs and in-class activities, writing papers, designing scientific posters, and giving presentations for our teachers and peers. We have practiced how to track logical reasoning, present information clearly and persuasively, and self-criticize. Above all, we have learned to respect and encourage our classmates in and outside of the lecture hall and learned first hand that collaboration is the key to success.

Biocore gives students an in depth honors biology experience while still providing an education intrinsically tied to these liberal arts. One unique component of the Biocore program that supports this type of learning is the laboratory coursework. In these classes, students are given the opportunity to hone their research skills through rigorous laboratory exercises. As Biocore students, we design and carry out experiments from start to finish without following a "cookie-cutter" protocol. We are encouraged to learn through our own exploration, from reading scientific literature to carrying out pilot studies in order to improve experimental design. This rigor is typically not found in other bioscience courses on campus, and as such this experience is especially beneficial for students who are interested in the intensity of

honors coursework but wish to focus their efforts on a curriculum based in biological studies.

This high quality learning is made possible by our amazing academic staff. They provide incredible support and are always available via email, during office hours, or through scheduled one-on-one meetings. These teachers want us to succeed, and the high instructor to student ratio enables the academic staff to connect with their students to improve chances of success in undertaking this rigorous coursework. In addition, because these classes are not graded on a curve, we are encouraged to work with our peers rather than engage in competition. We are challenged and pushed to the limit, but it is through these experiences that the Biocore faculty show us what we are truly capable of.

Biocore has inspired and motivated us as students to never stop pursuing a life of learning. We have taken the skills and knowledge gained in Biocore outside of the program to extracurriculars and projects in the community, and we know that we will continue to make use of our experiences as students in Biocore after we graduate. There will always be more avenues for research, more natural patterns to decipher, and more ideas to carefully unpack, but the honors nature of this program has given us the tools we need to succeed in any and all biological endeavors of our choosing.

We hope that you will choose to officially recognize the Biocore program as the cross-college honors biology program that it is, and honor the students who have engaged in this challenging but rewarding education with a special designation on their transcripts. If you have any questions, please feel free to contact us at any time.

Sincerely,

Olivia Sanderfoot
Biocore Class of 2014

Becky Reese
Biocore Class of 2014

Dear UW-Madison Faculty Honors Committee,

My name is Taylor Keding and I am a neurobiology and psychology undergraduate in the college of agricultural and life sciences. In this letter I hope to convey to you how important the Biocore curriculum has been to my education, both as a student and as a scientist, and my support for its official recognition as an honors program. I hope my views as a 'non-honors' student taking mostly honors classes is a useful perspective to you when making your decision.

I graduated from the four-semester Biocore sequence with the spring 2013 cohort. I belong to a small group of those students who were fortunate enough to take every class that Biocore offers, both lectures and laboratories. Based on my experience, each semester played a significant and distinct role in the progression of my education. My initial application to Biocore as a non-honors student came out of curiosity; I had taken a minimal amount of biology in high school but my interest in the subject was rapidly growing, mostly from content in my honors general chemistry course. The first semester, Evolution, Ecology, and Genetics, was unlike any class I had previously taken. Strong emphasis was put on the fundamentals of scientific understanding and application, instead of the mere memorization of biology concepts. Critical thinking, constant questioning, and group collaboration skills were crucial to success in lecture and laboratory, as well as rigorous practice with scientific writing. These high standards continued throughout the second and third semesters, Cell Biology and Organismal Biology, and taught me how to convey the advanced biology concepts I was learning concisely in my writing. The final semester, Biological Interactions required an advanced analytic mindset; using information from the previous semesters, I evaluated primary literature on modern topics like cancer, evolutionary systems biology, and microbial biology.

Despite the difficulties and challenges I faced across the four semesters, I never felt alone in my struggles. Teamwork and group collaboration was always encouraged and the course formats provided excellent environments to ask questions and get help from faculty and peers. Because of the high instructor to student ratio Biocore provided, content clarification was never out of reach. The Biocore peer mentoring program and constant group work in the laboratories helped me form lasting friendships and a network fellow biologists that I could always count on.

My future plans beyond undergraduate studies can be heavily attributed to my experiences in Biocore. Before joining the curriculum, I had no intention of continuing with biological research. I had minimal scientific writing skills and did not know how to think critically as a scientist. Now I am first author on published work, am confident in presenting scientific information, and am planning on attending a neuroscience graduate program. Biocore has helped instill in me a passion for science, questioning, discovery, and the importance of group collaboration and communication. In my view, it is the epitome of what an honors program should be and sets an example for all honors programs across the University of Wisconsin system.

I hope this account of my experiences aids in your decision to give Biocore an honors designation. I feel Biocore deserves to be officially recognized as a cross-college honors program, and as a graduate of the program, I know first-hand how well it prepares the minds of students across all fields of biology.

Thank you for your time.

Sincerely,

Taylor J. Keding

Biocore Class of 2013

November 27, 2013

Dear Faculty Honors Committee,

I am writing in support of the Biocore Programs application to be recognized as a cross-college honors biology program. I am currently a fifth year undergraduate studying biomedical engineering, biochemistry, and political science. I am also a 2012 Biocore graduate having completing all of the lab and lecture courses in the program. With this perspective, I can confidently say that Biocore has been one of the most enriching experiences of my undergraduate career.

I originally applied to the Biocore program because I needed six honors credits in the natural sciences for my Engineering Honors in Liberal Arts (EHLA) program and thought Biocore would be a good experience—and it was. Because of my very diverse academic interests, I have had the opportunity to take honors courses in many different departments across campus, but none of my other honors classes or sequences compare to the high quality of the Biocore Program. I think what makes Biocore so special is the Biocore “formula.” This formula is focused on three points that I want to address: self-motivated learning, critical thinking, and community-driven success.

What is so great about Biocore is that it takes each student’s intrinsic motivation in biology and gives them the opportunity to explore it even deeper. For example, in the Biocore labs students are asked to define and test unique scientific hypotheses. While designing these experiments students have free reign to explore the scientific literature and define a scientific question related to the biological topic at hand that they are motivated to find the answer to. This is unlike any other lab course I have taken where everyone in the class usually runs the same experiment from a lab protocol. One of the obvious challenges of this approach is the time the instructors must dedicate to preparing for the labs. This challenge however highlights one of Biocore’s other strong suits, the small class sizes and the high instructor to student ratio. I was shocked in my first Biocore lab where there were only 20 students and three course instructors. As a result of this, my lab group got a lot of one on one attention with our instructors as we designed each of our lab experiments. The benefits of this were astounding because not only were we designing experiments we were interested in, but we had instructors with years of scientific experience that directly engaged us in the challenges specific to our experiments.

This direct interaction with instructors exemplifies another key aspect of Biocore, its focus on critical thinking. The focus on critical thinking is best explained through what the staff and students know as “Biocore questions.” Biocore questions really get at the heart of what I saw as Biocore’s primary goal to get students past the basic knowledge in a textbook and get them thinking about the ramifications and applications of this basic knowledge. To give a specific example, in the Biocore capstone lecture there is no textbook only a list of journal articles to read. Each week focused on one article. The first lecture of the week was a broad overview of the general knowledge required to understand the article, the second focuses specifically on the article, and in the third lecture we worked collaboratively in groups of four on a web-based worksheet on the article. Uniquely, working on the worksheet was completely open book and highlights Biocore’s focus on critical thinking as compared to rote memorization. The Biocore questions on these worksheets could not simply be found by scanning through the journal article. In order to answer these questions, we needed a deep understanding of the articles and then we needed to be able to extrapolate it to new but similar situations.

The final point about Biocore that I think makes it so special is the focus on community-driven success. Biocore doesn’t curve grades because they don’t want students competing against each other for grades. As a result of this, students tend to work collaboratively. In my first few weeks of Biocore, I found myself working in a lot of groups in lecture, lab, and through the Biocore Peer Mentoring Program. It seemed a little daunting at first, but as I really got into Biocore, I really appreciated the opportunities to work in these groups because other students were genuinely interested in helping other students understand difficult concepts. By the end of Biocore my classmates and I were actively seeking each other out outside of class to study collaboratively because we realized that through a group effort we could ensure everybody’s success. The community atmosphere of Biocore is something that goes beyond

the curriculum as well. As I already mentioned, Biocore has an excellent peer mentoring program. In the program experienced mentors who have already taken the first semester of Biocore lead group sessions with incoming Biocore students. As a voluntary supplement to the labs, lectures, and discussion sections of Biocore, I can't say enough about the value I have gotten out of peer mentoring as both a mentee and mentor.

Overall, I think the Biocore formula focusing on self--motivated learning, critical thinking, and community-driven success has it exactly right. Coming out of Biocore I have always felt that my understanding of biology is much broader and deeper than my peers who did not take Biocore. I think that Biocore added a key element to my undergraduate education that I don't think I would have found anywhere else, and I truly hope that you will recognize Biocore as a cross-college honors biology program and give the program the status and recognition it truly deserves.

Sincerely,

A handwritten signature in black ink, appearing to read "Drew Birrenkott". The signature is fluid and cursive, with the first name "Drew" and last name "Birrenkott" clearly distinguishable.

Drew Birrenkott
University of Wisconsin-Madison Class of 2014
Biocore Class of 2012



College of Letters and Science Faculty Honors Committee
University of Wisconsin-Madison
CAMPUS

November 26, 2013

-Sent via email-

Dear Faculty Honors Committee:

I am writing as a faculty participant in the Biocore program to indicate my strong support for their request to have Biocore be officially recognized as H Honors and to have the students who are accepted into the Biocore program recognized as honors students.

I have been involved in instructional activities on our campus from a wide variety of perspectives over the past twenty-one years and I have had the great fortune to be connected to the Biocore program for nearly half of that time. The Biocore program is without question the signature undergraduate program in biological sciences on our campus. To me and to many faculty members who interact with this program, Biocore represents all of the essential elements of an honors program, including a strong emphasis on science communications, careful review of primary scientific literature, and a very high level of interaction with instructors in lecture, laboratory, and discussion sections.

In fact, I have found the level of interaction between Biocore students and their instructors to be remarkable. In evening discussions outside of class that I have helped organize, Biocore students not only come to participate, but they display extraordinary depth of knowledge and desire for learning that is far outside of the norm, even for the thousands of bright and dedicated students on our campus. I have worked with Biocore students who have developed extensive science projects outside of the Biocore program to further their own learning goals. The level of commitment, interaction, and discourse associated with the Biocore program goes far beyond the boundaries of what is required in an already substantially challenging curriculum. It extends into the very best parts of critical thinking and fosters what I believe to be one of the highest quality, if not *the* highest quality, academic programs offered on our campus.

I have had the great fortune to work with honors students on our campus for a number of years, and I can say without hesitation that the Biocore program upholds the highest standards of what an honors program should be, and does so with an outstanding commitment to providing the highest level of learning opportunities for our students.

Sincerely,

I.L. Goldman
Professor and Chair

Department of Horticulture

Biology Core : Innovation at U

By RENA STEINZOR
Cardinal Staff Writer

In the past two decades, biology has changed radically from an unrelated body of fragmented subjects to a consolidated field on the brink of multiple crucial discoveries.

Wisconsin's Core Biology Program, now in its first year is making a revolutionary effort to train future biologists through an interdepartmental course curriculum.

Kelly Clifton, chairman of the Core Curriculum Committee told the Daily Cardinal, "This is the biggest biology campus in the world." The Core program will eventually be a prerequisite for all biology majors.

Three aspects of Core are unique—its interdepartmental curriculum, its emphasis on original lab work, and its current small size.

The eighty students presently in the experimental program take physics, chemistry and math in addition to the Core five-semester sequence consisting of a two credit, two semester background course, cellular biology, organismal biology, and population biology. The student quickly acquires a solid background in other sciences necessary for an understanding of biology.

Team teaching in Core enables the students to get the benefit of spe-

cialists who normally teach on the graduate level. As Clifton stated, "These fellows can bring to their subjects the living dynamics of the field because they are currently engaged in research."

Strong emphasis is placed on tutorial labs with a small student-faculty ratio. The labs are equipped on a graduate level. Students are encouraged to apply techniques they have learned to unexplored experimental areas. Independent work is valued and students are given the opportunity to carry out original projects.

A sophomore in the second semester of Core pointed out its practical aspects. "They're trying to make biology as attractive as possible so they can get new research assistants." The Core program ends in the junior year. The student may then take highly specialized courses in his field. Clifton stated that Core was the preferred pathway of most biology professors.

Although the program is geared to biology majors, anyone interested may participate. Core offers a one credit general concepts course for freshmen, which deals with the development of biological ideas past, present, and future.

Educators throughout the country have responded to the urgent
(continued on page 4)

4—THE DAILY CARDINAL Saturday, February 24, 1968

Biology Program

(continued from page 1)

need for innovation in biology education with programs similar to the University's Core, Harvard, Yale, the University of Chicago and many other top schools have parallel course systems.

The University's program is special, however, in that it has not preempted other biology programs. "Here Core must be best in order to survive."

Students interviewed within the program were amazingly enthusiastic about it. All stressed the relevancy of their work. "All this stuff we're

doing is being done for the first time," a student stated, "Biology is the science that's happening right now—physics is dead, and chemistry, medieval."

All stressed the opportunity to work closely with their professors in a relaxed lab atmosphere. The small size of the program was valued. Many students felt that expansion would destroy the program.

A junior in second semester Core stated that the requirements were too rigorous. "I don't care how much you love science, three courses a semester of science are an awful lot," he added, though more room is left in the average Core curriculum for electives than in a normal B.S. schedule.

In summarizing the program, Clifton stated, "We believe that we have a built-in mechanism for growth in that the Core program is not departmental, and is always changing."

Appendix 3 - 2001 Biocore Program Review

Report of the Biocore Program Review Committee

Edgar Spalding, Botany (Committee Chair)

Seth Blair, Zoology

Michael Culbertson, Genetics

Thomas German, Entomology

Peter Lipton, Physiology

Kenneth Sytsma, Botany

Lillian Tong, Center for Biology Education

Purpose and Process

In June 2001, Dean Phillip R. Certain of the College of Letters and Science convened the above committee to conduct a review of the Biology Core Curriculum Program (Biocore) on behalf of the College and the Deans of Biology programs across the UW-Madison campus. The imminent retirement of the Biocore Director and two key faculty members raised concern that the program, which relies heavily on volunteerism, could be at a crossroads. The review began on July 17 when Dean Certain asked the committee to learn about the program in detail and return an honest assessment of its viability. In particular, the committee was to determine if inconstancy in the roster of instructors, a by-product of volunteerism, was a threat to the program. If so, the committee was to determine what, if anything, could be done to improve the situation. The committee was given the freedom to consider all options, including a recommendation to cancel the program if no solutions could be found. During the next day and a half, the committee met with the Director of Biocore, past and present Biocore faculty, staff, and Biocore students. The committee also toured Biocore facilities, met with representatives of the L&S and CALS Honors programs, and with faculty and staff involved in other aspects of biology education on campus. Written comments were received from some additional interested parties. Dr. Elaine Klein (L&S Administration) ably assisted the committee on these days, but was not present when the committee met again during the afternoon of August 1 to discuss the first draft of the report. More details about the input side of the review are contained in the Appendix on page 6.

The committee appreciated Biocore's hospitality, candor, and willingness to help by providing materials and statistics. Ann Burgess, the Director of Biocore, is due special thanks for accommodating all of the committee's various requests.

The Program

Overview – Biocore is an honors program that is devoted entirely to undergraduate teaching and learning. It is a four-semester sequence that sophomores enter and finish in time to complete the requirements of one of several majors in the biological sciences. Admission into the program is competitive and the material is taught at an advanced pace. Biocore may be distinguished from other introductory biology course sequences on campus by its two-year structure, its pace, its emphasis on the processes of learning and discovery, and the amount of student-instructor contact.

History – Biocore was originally conceived in 1967 as a cross-college curriculum reform effort, an alternative to existing two-semester treatments of introductory biology. Its founders envisioned a unified core sequence of courses that would serve as the principal biology course sequence and the foundation training for all the biological science majors on campus. During a time when especially motivated, ambitious students were agitating for more accelerated learning opportunities, Biocore instead evolved into an Honors course sequence. Bot/Zoo 151-152 (Introductory Biology) is the mainstream introductory biology sequence, and Bot 130-Zoo 101 is yet another alternative.

Curriculum Structure – The seven Biocore courses (four lectures, three labs) are taken in sequence over four semesters. The components are highly integrated and the sequence culminates in a capstone experience that synthesizes the concepts learned and applies them through studies of the primary research literature.

301 Evolution, Ecology & Genetics (3 cr) 302 Evolution, Ecology & Genetics Lab (2 cr)	303 – Cellular Biology (3 cr) 304 – Cellular Biology Lab (2 cr)
323 Organismal Biology (3 cr) 324 Organismal Biology Lab (2 cr)	333 Biological Interactions (3 cr)

The courses are team-taught by faculty drawn from across campus. Typically, three faculty members participate in each course. Each professor teaches roughly 5 weeks of lectures, attends other lectures in the course, and often participates in lab sections. Each course is overseen by one of the participating faculty, the course chair.

While this curriculum structure is stable, the program is small and nimble enough that changes in the content of both lab and lecture can be made as necessary. In fact, Biocore has a tradition of innovation and change that no doubt contributed to it recently being honored with a Chancellor's Award for Departmental Excellence in Teaching.

The committee heard many positive things about the Biocore curriculum from staff, students, and even outsiders. But it also heard criticisms. 1) The sequence goes beyond the introductory level, but does not delve into key areas to the depth that existing full semester, upper-level treatments of certain topics can reach. For example, only a third of Biocore 301 is dedicated to genetics and while elements of genetics are integrated elsewhere in the sequence, it is difficult to imagine the treatment is equivalent to the full semester of genetics delivered in Genetics 466. The same can be said about the ecology component not being equal to Bot/Zoo 460 (General Ecology). This generates some awkwardness because Biocore students ultimately declare a biology-related major and these majors may use 466 and 460 as requirements. These majors must wrestle with the question of whether it is reasonable and fair for Biocore 301/302 to take the place of 466 and 460 or if Biocore students should be required to take these courses despite the redundancy. Because Biocore is neither introductory nor upper-level, its curriculum does not always neatly mesh with the curricula of all the relevant majors. A brief perusing of the undergraduate catalog shows significant variability in how different majors handle this situation. 2) The order in which topics are taught in the sequence was not universally seen as ideal. Individuals who formerly taught in Biocore expressed to the committee their dissatisfaction with some structural aspects of the curriculum and cited these issues as a reason why they stopped contributing to the program.

Learning – A select group of 160 students enter the sequence each year and move through the series of courses as a cohort. The amount of time the students spend together in lectures, labs, and discussion results in a tight peer community that practices group problem solving. The cohort learns in a qualitatively different fashion, with more student-faculty contact, than is possible in a two-semester sequence. The four-semester structure of Biocore permits a reiterative, integrative approach that is not possible in an alternative sequence such as Biology 151/152. In addition to the structural features that distinguish Biocore, the course material is presented at a pace and degree of sophistication that quickly rises above the typical introductory level. Not all students meet the challenge and there is an attrition of roughly 20 students per semester. Some students leave the program after two semesters because the major they have declared does not require the full sequence. Many Biocore students are aiming for medical school, though many get hooked on discovery and pursue graduate studies. The nine students the committee met were stellar ambassadors of the program. The way they spoke about their experiences with the program revealed a high level of preparation and familiarity with biology. They comported themselves most impressively. Such students may be expected to distinguish themselves, and therefore the university, in their subsequent careers. The individuals that met with the committee were not selected but instead responded to an email that was sent to all current, recently finished, or dropped-out students. Of the nine students that came to the meeting, each was performing research on campus for the summer on topics that ranged from ecological to biochemical.

Niche – Biocore serves select students who desire a more challenging and prestigious biology curriculum. They need not be enrolled in an honors program, though many are. Biocore serves an important role in L&S by providing 16 Honors credits. A student interested in biology would have difficulty obtaining the required number of Honors

credits if it were not for Biocore. The same is not as true for CALS students, due to differences in the CALS and L&S Honors programs.

The Medical Scholars program is populated by a large number of Biocore students, and the majority of UW students admitted to medical school here are Biocore alumni. Students interested in medical school have the impression, which may have a basis in fact, that success in Biocore increases the probability of admission into medical school. This and the competitive nature of admission into Biocore probably explains why the preponderance of students in Biocore have at least contemplated attending medical school. Thus, Biocore fills an important niche in the mission of the Medical School.

The emphasis in the Biocore curriculum on the process of how knowledge is gained prepares students well for research and the research activities of many faculty members in all colleges and schools on campus have benefited from the contributions of Biocore-trained students. Thus, Biocore trains undergraduate talent that helps fill a niche in the research enterprise of this university.

The alternative introductory biology sequence, Bot/Zoo 151-152, teaches at a pace and level commensurate with the diverse backgrounds of its clientele. Biocore fills a separate niche by providing an accelerated track to students who may not be fully challenged and stimulated by 151-152. Also, The two course sequences experience many of the same difficulties, such as recruiting teachers, so the subsuming of one by the other would not solve the problems.

Resources - The program is resource-intensive. Typically, three professors participate in each 15-week course. Significant efforts are made to integrate their separate contributions and smooth over their junctions, which means a professor does more than simply deliver a block of lectures. For example, professors are expected to attend each other's lectures, to participate in weekly meetings and discussion sections, and to help set and grade the exams. It is not considered an easy teaching assignment.

The four full-time academic staff positions in Biocore are Ann Burgess, the director, a lab coordinator, a technician/preparatory person, and an administrative assistant. TA's run the labs and the discussion sections, and do much of the grading. The amount of 'resources' consumed per student taught, when dollars and person-hours are considered, is undoubtedly higher than an alternative sequence such as Biology 151/152. This point was argued by some as a reason to consider phasing Biocore out. The committee weighed whether Biocore was a program the university could not afford versus one it could not afford to lose. Two lines of reasoning persuaded the committee that the latter was more accurate. 1) The university has a responsibility or obligation to provide our best students with especially challenging learning experiences. 2) The university has an interest in providing the best preparation possible for those students willing to put extra effort in their preparation for subsequent endeavors because when they succeed, the university succeeds.

Governance - Biocore is not affiliated with a department. It is governed by an intercollege steering committee consisting of 9 faculty, 3 academic staff, 1 teaching assistant, and 2 undergraduates. A subset of the faculty constitutes an executive committee that meets occasionally with the director, as do the course chairs, to discuss ongoing issues and integration of the sequence. The committee reviewing Biocore felt that the steering committee could be used to better advantage, as described in the recommendations section below.

Funding - At its inception CALS and the Medical School may have contributed financially to Biocore through an informal arrangement but presently and for some time Biocore has been funded entirely by L&S. Because other colleges and schools benefit from Biocore's activities, it is reasonable to expect the financial burden to be spread. Some suggestions follow.

Challenges

Convinced that Biocore or a program like it is necessary, the committee focused on its two present challenges:

- (1) The current director and key faculty members are retiring.
- (2) More stability in the cadre of teachers is necessary.

Recommendations

1A) A person to replace Ann Burgess should be hired and, in the interests of continuity, the search should begin without delay. A Ph.D.-level academic staff person with teaching and research experience in a biological field would be ideal. The duties of this person would include managing the day-to-day operations of the four courses and contribute to teaching. The appointment should be 100% for 12 months; the duties and workload justify it.

B) The Dean of L&S should appoint a faculty member who is broadly recognized for quality contributions to teaching and research to be Faculty Director of Biocore. The Faculty Director would be the primary advocate for the program across campus. The chief duties of the Faculty Director would be recruitment of teaching staff, maintenance of high standards, curriculum oversight, educating the campus about the merits and needs of Biocore, and ensuring that Biocore integrates well with other facets of biology education on campus. This person will appoint and chair a steering committee of 5 to 7 people to be drawn from L&S, CALS, and the Medical School. Regular meetings of such a committee, which could also include student representatives, would help the Faculty Director be aware of issues and developments in various units across campus that could advantage Biocore. The committee recommend that the Bio Deans collectively take responsibility for compensating the Faculty Director for his or her efforts.

2) The MAMA system used by the Medical School to distribute credit for teaching does not, in any obvious way, reward departments more for contributing to Biocore than to one of the department's undergraduate courses. If any special treatment for Biocore is built into the MAMA allocation system, it is not obvious enough to induce a department to help staff Biocore. This does not seem consistent with the role Biocore plays in the Med Scholars program, in the preparation of pre-med students, and in the preparation of undergraduate and graduate research assistants. Without special treatment within the reward system, it would be reasonable for a department to deprioritize non-departmental needs such as Biocore. Thus, the committee recommends that teaching in Biocore be given higher value in the MAMA system. The committee also recommends that the Medical School administration better inform departments about the MAMA system because incentives are only as effective as they are understood. The Biocore Faculty Director and the steering committee could assist this information transfer.

The Biocore program also serves CALS in important ways. For example, many Biocore students are Biochemistry majors and bring their excellent preparation to the classroom for their remaining course work, and to the research labs of individual investigators. Yet, a CALS professor teaching outside of the department in a program such as Biocore may not have his or her efforts recognized by the department. And the College does not sufficiently reward departments when their faculty members contribute to such programs. The committee urges the Dean of CALS to create an effective incentive for departments to encourage faculty participation in Biocore. As argued above, intercollege programs require special treatment in the rewards-allocation mechanism if the departments are to shift resources to them.

3) Although Biocore is relevant to the teaching mission of many colleges and schools, its needs are typically not considered when the activities of new faculty hires are determined. A mechanism for making known the staffing needs of Biocore to departments that are hiring faculty members should be put in place by the Faculty Director and Steering Committee. A case should be made to those departments that the degree and quality of interaction between experienced and dedicated teachers during a semester of Biocore creates a superb mentoring opportunity for a new member of the faculty. A message should be sent down through departments that a five-week stint of teaching in Biocore, along with a letter of evaluation from a respected teaching peer, can distinguish an assistant professor's tenure packet. The Faculty Director should inform the Biological Sciences' Tenure Committee of the intensive and interactive nature of Biocore teaching to help dispel any notion that the effort would not be appreciated and recognized. Finally, the committee urges the individual Biological Science Deans to consider the staffing needs of Biocore when hirings are made in their school or college. The committee is not advocating that Deans attach specific teaching assignments to offered positions, but it would be in the interests of the school or college for the Dean to query whether a given position could be used to strengthen a non-departmental program such as Biocore.

A source of teaching talent that may be presently underutilized is the pool of Ph.D.'s in clinical departments within the medical and veterinary schools. New faculty members without a full, or fully-defined teaching mission may find the Biocore program attractive when it is explained. If recruiting efforts created a sufficiently large Biocore faculty,

regularly scheduled years off from teaching could be arranged. Such 'sabbaticals' could be an incentive to faculty who are not required to teach, and who may be leery of over-committing to the program.

4) Action on the above recommendations will secure the Biocore program, but the changing landscape of biology education on this campus may require the Faculty Director and the Steering Committee to implement adjustments to the curriculum and course structure from time to time. For example, growth and development of the relatively new Biology major may provide opportunities and challenges for Biocore. Good communication between all groups concerned with biology education is necessary if this campus is to maintain the means to deliver an advanced treatment of biology to those undergrads who want and deserve the extra challenge.

In summary, the committee came to the conclusion that Biocore is the sort of program that distinguishes excellent universities from good universities. The challenges Biocore faces now are solvable because faculty and students value the program - there is a large amount of goodwill for its success on campus. A strengthening and broadening of its administration, better telegraphing of the program's contributions and needs to departments that may have faculty able to help, and changes in the reward system for undergraduate teaching are realistic changes that could solve the problems that presently nag Biocore.

Note added 12/02: Biocore's response to this review follows the appendix.

Appendix

Annotated Schedule of Biocore Review – Summer 2001

July 17

9:00 Dean's charge to the Committee - Dean's Conference Room, South Hall
10:00 Committee meets to discuss report, develop questions
Break & walk from South Hall to Noland Hall
11:00 Meet with Ann Burgess (Biocore Director) and Millard Susman (taught in and helped administer the program since its inception) - 163 Noland Hall
11:45 Tour of Noland Hall facilities
12:30 Lunch with Biocore students (pizza and soda) - 163 Noland
1:45 Evelyn Howell and Wayne Becker (stalwart Biocore faculty members)
2:30 Lynn Allen-Hoffmann (ex-Biocore faculty member, short term) and Donata Oertel (present Biocore faculty member, long term)
3:15 Tom Sharkey (co-chair of the Biology Major; co-chair Bob Goodman submitted written notes because he was out of town.)
4:00 Jeff Hardin and Jerry Dempsey (current Biocore faculty members)

July 18

9:00 Herb Wang and Bob Ray (representing L&S and CALS Honors Programs, respectively) -163 Noland
9:40 Michelle Harris (Biocore staff) and Jean Heitz Bot/Zoo 151-152 staff)
10:15 Bill Dove and Deric Bownds (ex Biocore faculty members, very knowledgeable about biology undergraduate education on campus)
11:00 John Harting (present Biocore faculty, success with recruiting teaching staff from the Anatomy dept.)
11:20 Millard Susman, Ann Burgess, Wayne Becker (a chance to ask remaining questions of these key Biocore personnel.)
12:30 working lunch for the committee – adjourned approx 3 pm.

In addition to these discussions, the committee considered written comments submitted by four or five additional faculty members who had experience with Biocore.

August 1

1:00-4:30 Committee met to discuss a draft of the report.
The many subsequent communications were conducted by email.

August 28

The committee chair received information about provisions for Biocore in the MAMA system from Susan Skochelak, Senior Associate Dean for Academic Affairs in the Medical School. Email discussion of this information by the committee resulted in revisions to the text.

September 5

Report submitted to Dean Certain

Biology Core Curriculum

University of Wisconsin-Madison

October 2, 2001

Dean Phillip Certain
College of Letters and Science
105 South Hall
Campus

Dear Phil,

Thank you for the opportunity to respond to the report prepared by the Biocore Program Review Committee. I sent copies of the report to the Biocore Steering Committee and invited their comments; I also met with the Course Chairs Committee to discuss the report.

We thank the Review Committee for their diligent work and thoughtful report. We think they captured the essence of Biocore and we definitely share their conclusion that programs like Biocore distinguish a great university from a good university.

We would like to add the following clarifications:

1. The report asserts (page 2) that the third of a semester of genetics taught in Biocore 301 can not be considered equivalent to Genetics 466. Genetics in Biocore is not confined to Biocore 301 (Evolution, Ecology, and Genetics). It constitutes more than half of Biocore 303 (Cellular Biology), where we take up molecular genetics and genetic control mechanisms, as well as a large part of Biocore 333 (Biological Interactions), where students read papers from the biological literature on several topics that depend heavily on genetics. We acknowledge, however, that our coverage of population genetics has been quite variable over the past years, depending on the faculty involved.

Ecology presents a different situation. We have never suggested that Biocore substitutes for Bot/Zoo 460. Students who need this course take it in addition to Biocore.

2. We did not adequately convey to the Review Committee the substantial role that our research-intensive, writing-intensive laboratory courses play in the program. Students experience science as a process as they participate in activities such as prairie restoration experiments in 302 and designing physiology experiments in 324. Communicating one's ideas in writing and exposing them to review by the scientific community are also parts of the process of science, and all of our laboratory courses include extensive instruction and feedback concerning writing. In the most recent evaluation of the entire Biocore sequence by students at the end of the fourth semester, the students' comments on the lab courses were especially and remarkably laudatory. Our laboratory courses are designed and taught by permanent academic staff; TAs assist but they do not "run the labs" as stated in the report (page 3).
3. A related issue is the committee's recommendation (1A, page 4) that the duties of the person hired as my replacement should be to manage the day-to-day operations of the four courses and contribute to teaching. At a minimum, this person needs to take charge of the Biocore 302 laboratory course. My primary responsibility these many years has been to teach the Evolution, Ecology, and Genetics Laboratory course (302) during the Fall semester and Cellular Biology Laboratory course (304) during the Spring semester. In recent years I have had help from Curt Caslavka in 302 and Michelle Harris in

304. Note that Curt Caslavka (whose main role is to manage our facilities and equipment and prepare all the materials needed for 302 and 304) is also retiring June 30, 2002.

In addition, we wish to emphasize the following points:

1. Currently, many departments recognize Biocore teaching and count it in determining a faculty member's teaching load; some do not. All should, and the Bio Deans could really help to ensure that this is the case in all departments.
2. We welcome the suggestion (page 5) that Biocore's needs be taken into account in new faculty hires. However, we do not want anyone to be assigned to Biocore without our input; we must be involved in the hiring process or in other ways able to choose the faculty who teach our courses.
3. Course chairs take on substantial additional responsibilities. In addition to teaching approximately 1/3 of the course, they help recruit faculty to participate, organize and lead the team planning meetings, select and train the teaching assistants, provide feedback and suggestions to the course faculty, oversee the exams, and interact with me and the other chairs to assure that the program is integrated. Biocore 333 currently is without a chair; so I have had to serve in that role. Biocore 303 will be without a chair when Wayne Becker retires. We request that an incentive be offered for the four chairs. For example, Evelyn Howell is the chair of Biocore 301, and CALS currently provides the salary for a one semester half-time TA for Landscape Architecture to assist with Prof. Howell's other courses.
4. The role of the Faculty Director of Biocore (recommendation 1B, page 4) is critical. This position should be coupled with incentives and honor so that it will be viewed as an award. The person chosen should be well-respected across campus and have demonstrated excellence in teaching and commitment to undergraduates. A long-term solution could be the establishment of a chaired Biocore Professorship to be awarded to the Faculty Director. (Please consider making this a priority in the current capital campaign.) However, there also needs to be a short-term solution since the Faculty Director should be appointed soon so that s/he can be involved in hiring replacements for me and Curt Caslavka.

We would be happy to discuss any of these ideas further.

Sincerely,
Ann Burgess
Director

xc: Millard Susman, Chair, Biocore Executive Committee
Edgar Spalding, Chair, Biocore Review Committee
Elaine Klein, L&S Administration

February 4, 2014



To Whom It May Concern:

As an addendum to the proposal to create a Biocore Honors transcript designation, the attached chart is provided to help explain the relationship of the proposed Biocore Honors to the current Honors degrees offered in the College of Letters & Science. The first chart offers a comparison of the various Honors degree tracks in L&S to Biocore honors. While Honors in the Liberal Arts, Honors in the Major, and Comprehensive Honors (HLA, HM, CH) are degree level awards in the College of Letters & Science, the proposed Biocore honors designation will be a **transcript level award only**. Students who successfully complete Biocore Honors will not have that noted on their diplomas nor will they be eligible to walk with L&S Honors commencement regalia (white stole with cardinal bars) unless they have also completed one of the three L&S Honors degrees (HLA, HM, CH).

The second chart on the attached sheet illustrates how many additional credits a Biocore student would be required to take in order to earn an Honors degree in the College of Letters & Science. For Honors in the Liberal Arts, students need an additional 12 honors credits (split across two breadth areas: Humanities and Social Science), while for Honors in the Major, additional work varies from 6 credits to as many as 26 credits (the listed credits are estimates based on the undergraduate catalog and DARS). Comprehensive Honors (when students complete both HLA and HM) would require 18-38 additional credits (depending on the major). As noted in the chart, only three majors in the College of Letters & Science currently accept some Biocore work towards their HM requirements, most do not accept any Biocore work towards HM requirements. In all cases (even for the majors that accept some Biocore), additional honors work would be required to earn an Honors degree along with Biocore.

The L&S Honors Program is confident that the proposed Biocore Honors will in no way diminish the value and significance of the Honors degrees available in the college, and will give students who complete Biocore appropriate recognition for their Honors-caliber work. The L&S Honors Program has a number of Honors students every year who successfully complete the Biocore program but do not finish their Honors degree; we are happy to see these students achieve some recognition for the more challenging and enriched work they did through the Biocore program.

Sincerely,

Jennifer Kaufmann-Buhler, Ph.D.
Associate Director of Academic Services
L&S Honors Program

Honors Program
College of Letters and Science

Honors in the College of Letters & Science Compared with Biocore Honors

	Honors in the Liberal Arts	Honors in the Major*	Comprehensive Honors*	Biocore Honors
Honors credits required	24	9-23 (typical)	24-40	16
GPA	3.3 cum	3.3-3.5 cum/major	3.3-3.5 cum/major	3.3 cum
transcript notation	yes	yes	yes	yes
degree level award (diploma)	yes	yes	yes	no
Honors commencement regalia	yes	yes	yes	no

If a student completed Biocore Honors, how much *additional* work would be required to complete an honors degree in L&S?

Honors in the Liberal Arts	Honors in the Major*	Comprehensive Honors*
6 credits of honors social science	HM in Biology: 13 honors credits (in addition to Biocore)	18-38 additional honors credits
6 credits of honors humanities	HM in Microbiology: 21 honors credits	(in addition to Biocore)
12 honors credits total (in addition to Biocore)	HM in Zoology: 12 honors credits	
	HM in Biochemistry: 26 honors credits (in addition to Biocore)	
	HM in BAC: 6 honors credits (in addition to Biocore)	
	HM in Molecular Bio: 16 honors credits (approx)	
	HM in Chemisty: 9 honors credits	
	HM in Environmental Sciences: 6 honors credits	
	HM in Botany: 18 honors credits	

*These are estimates based on information in the undergraduate catalog and DARS. Honors credits required for HM listed below include 6 credits of the Senior Honors Thesis (681-682)



TO: Jeff Hardin
Janet Batzli
Elaine Klein

FROM: Philip A. Gonsiska, CALS Assistant Dean for Academic Programs and Policies, CALS Honors Program

DATE: 27 January 2014

RE: Proposal to recognize Biocore as an honors program

As demonstrated in the proposal documents, Biocore has a long history of fostering academic growth in its students in the ways expected of university honors programs. Therefore, as the Honors Dean for CALS, I strongly support the formal recognition of Biocore as an honors program.

Additionally, there is very little overlap between Biocore and the CALS Honors Program, in terms of curriculum and student body, and I expect that recognizing Biocore as an honors program will have a minimal impact on the CALS Honors Program. Approximately 12% of students currently enrolled in the CALS Honors Program have also participated in Biocore. I also note that the credential earned by Biocore students will be distinct from those awarded by other honors programs at this university. I welcome the opportunity for students to complete both the Honors in Biocore Program and the CALS Honors Program.

Office of Academic Affairs

116 Agricultural Hall
FAX 608/265-5905

1450 Linden Drive
spfatt@cals.wisc.edu

Madison WI 57306-1562
PHONE 608/262-3003



DATE: December 12, 2013

TO: Eric Wilcots, L&S Associate Dean for the Natural and Mathematical Sciences
Elaine Klein, L&S Assistant Dean for Academic Planning

CC: Jeff Hardin, Faculty Director Biology Core Curriculum
Janet Batzli, Associate Director, Biology Core Curriculum
Jocelyn Milner, Associate Provost and Director of Academic Planning and Institutional Research
Christopher Olsen, Vice Provost for Teaching and Learning
Sarah Pfatteicher, CALS Associate Dean for Academic Affairs
Jennifer Kaurmann-Buhler, Associate Director of Academic Services, L&S Honors Program

FROM: Sissel Schroeder, Director, L&S Honors Program and Chair, L&S Faculty Honors Committee

RE: Biocore Honors Proposal

On December 3, 2013, the L&S Faculty Honors Committee (FHC) reviewed and discussed the proposal from the Biocore Program to become an Honors Program recognized at the transcript (not degree) level. The FHC unanimously endorsed the proposal and supports the goals of the Biocore Program to:

1. Officially be recognized as an 'H' Honors Program
2. Have administrative recognition of all students enrolled in Biocore as honors students
3. Have a transcript notation of "Biocore Honors Distinction" for students who complete the Biocore four lecture sequence of 381, 383, 485, and 587 and at least two of the three Biocore lab courses (382, 384, 486), achieve a B grade or higher in all Biocore courses, and have a minimum cumulative GPA of 3.3 at the time of graduation.

**Honors Program
College of Letters and Science**

Washburn Observatory University of Wisconsin-Madison 1401 Observatory Drive Madison, Wisconsin 53706-1209
608/262-2984 Fax: 608/263-7116 E-mail: honors@honors.ls.wisc.edu www.honors.ls.wisc.edu



December 27, 2013

Dear Professor Schroeder,

Thank you very much for your presentation to the University Honors Committee regarding the Biocore Program. As you know, the University Honors Committee unanimously endorsed the proposal that Biocore be recognized as an H Honors Program. This endorsement includes the following changes to the Biocore Program as you outlined in your proposal:

- 1.) Official recognition of Biocore as an 'H' Honors Program
- 2.) Administrative recognition of all students enrolled in Biocore as honors students
- 3.) Transcript notation of Biocore Honors Distinction for students' who complete the Biocore four-lecture sequence of 381, 383, 485, and 587 and at least two of the three Biocore lab courses (382, 384, 486), achieve a B grade or higher in all Biocore courses, and have a minimum cumulative GPA of 3.3 at the time of graduation.

On behalf of the University Honors Committee,

Rebecca J. Muehrer
Chair – University Honors Committee
Assistant Professor
UW-Madison School of Nursing

cc: Christopher W. Olsen
Jeff Hardin
Laurie Mayberry