

04/06/2015



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## Proposal to the Senate Educational Policy Committee

**PROPOSAL TITLE:** Revision of the BSLAS in Molecular and Cellular Biology in the School of Molecular and Cellular Biology in the College of Liberal Arts and Sciences.

**SPONSOR:** Brenda A. Wilson, Professor of Microbiology, Assoc. Director for Undergraduate Education, 217.244.9631, bawilson@life.illinois.edu.

**COLLEGE CONTACT:** Karen Carney, Associate Dean, College of LAS, 217.333.1350, kmcarney@illinois.edu.

**BRIEF DESCRIPTION:** The School of MCB proposes to change the requirement for the study of statistics from STAT 100: Statistics, 3 cr. hrs. to STAT 212: Biostatistics, 3 cr. hrs. Currently STAT 100 is part of a choice between Calculus II and STAT 100. There will be no change to the Calculus II option. This proposed change requires no change in prerequisite courses, no change in course credit hours and no change in degree program credit hours. STAT 100 would be replaced by STAT 212 as shown in Appendix A.

**JUSTIFICATION:** The School of MCB is interested in providing a more biologically-oriented statistics course for our MCB majors. Currently students have a choice between Calculus II and STAT 100. The majority of our students elect to take STAT 100. We view this as an opportunity to provide them with a much richer experience by learning statistics in the context of biological problems using tools that biologists use every day to address important research questions. We are also eager to better balance the level of rigor slightly by moving from STAT 100 to STAT 212. Because our degree program requires students to choose between MATH 231: Calculus II and STAT 100, we believe the move to STAT 212 will make the choice more equitable with both courses at the 200-level. In addition, we are working with the Department of Math to develop more biologically-oriented sections of MATH 220: Calculus and MATH 221: Calculus I. These sections would use biological examples of how the principles of calculus are applied to biological problems. We are hopeful that students who have taken these biologically-oriented sections of Calculus will have a deeper appreciation for the relationship of math and biology. We believe that they will take this appreciation with them to either MATH 231: Calculus II or STAT 212: Biostatistics.

### BUDGETARY AND STAFF IMPLICATIONS:

#### 1) Resources

- a. How does the unit intend to financially support this proposal?

The change in requirement from STAT 100: Statistics to STAT 212: Biostatistics is expected to be budget neutral as it involves replacing one Statistics course requirement with another. MCB has discussed this a number of times with the Department of Statistics and we are confident in this assertion (see enclosed letter from the Department of Statistics).

- b. How will the unit create capacity or surplus to appropriately resource this program? If applicable, what functions or programs will the unit no longer support to create capacity?  
As MCB students shift their enrollment from STAT 100 to STAT 212, the Department of Statistics will move a proportionate amount of instructional effort and other resources (e.g. TAs) from one course (STAT 100) to the other (STAT 212) to accommodate the student migration.
- c. Will the unit need to seek campus or other external resources? If so, please provide a summary of the sources and an indication of the approved support.

Neither the School of MCB, nor the Department of Statistics, is requesting or plans to request additional resources to facilitate this change in requirement.

- d. Please provide a letter of acknowledgment from the college that outlines the financial arrangements for the proposed program.

A letter from Douglas Simpson, Chair of the Department of Statistics, is enclosed.

## 2) Resource Implications

- a. Please address the impact on faculty resources including the changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc.

This is a budget neutral request. No new faculty resources will be required and this should not result in any change in faculty teaching loads or student-faculty ratios. The only significant change that will take place over time is fewer MCB majors will take STAT 100 as more MCB majors take STAT 212. The overall class size of STAT 100 will decrease proportionately with the increased enrollment in STAT 212.

- b. Please address the impact on course enrollment in other units and provide an explanation of discussions with representatives of those units.

The proposed change will cause the enrollment of MCB majors in STAT 100 to decrease and the enrollment in STAT 212 to increase by the same proportion. This will be managed in a budget neutral fashion in collaboration with the Department of Statistics as described in the attached letter. There should be no other enrollment impact on units outside of the Department of Statistics.

- c. Please address the impact on the University Library

The University Library should experience no impact from this change.

- d. Please address the impact on technology and space (e.g. computer use, laboratory use, equipment, etc.)

STAT 212: Biostatistics currently does not use campus computer lab classrooms. Students use their own laptops/computers, or campus machines in open labs, to complete homework assignments outside of class time. The plan is to continue with this model until such a time that it is no longer functional. Should that happen, and we aren't certain that it will, we would move to an "open lab" model where the instructor of STAT 212 would reserve a CITES computer lab classroom for 1-2 hours per week as needed and would provide "office hours" in the computer lab in order to assist students with content challenges that require computer usage (e.g. the use of R software for statistical computing).

**DESIRED EFFECTIVE DATE:**

Fall 2015

**CLEARANCES:**

Signatures:

*Theresa Ann Wilson*  
Unit Representative:

16 February 2015  
Date:

*Karen M Carney*  
College Representative:

3/2/15  
Date:

Proposed Academic Catalog Entry with Edits

## Molecular and Cellular Biology Concentration

<a href="#">MATH 220</a> or <a href="#">MATH 221</a>	Calculus Calculus I	4-5
<a href="#">MATH 231</a> or <del>STAT 100</del> <a href="#">STAT 212</a>	Calculus II <del>Statistics</del> <b>Biostatistics</b>	3
Select one group of courses:		8-10
<a href="#">CHEM 102</a> & <a href="#">CHEM 103</a> & <a href="#">CHEM 104</a> & <a href="#">CHEM 105</a>	General Chemistry I and General Chemistry Lab I and General Chemistry II and General Chemistry Lab II	
<a href="#">CHEM 202</a> & <a href="#">CHEM 203</a> & <a href="#">CHEM 204</a> & <a href="#">CHEM 205</a>	Accelerated Chemistry I and Accelerated Chemistry Lab I and Accelerated Chemistry II and Accelerated Chemistry Lab II	
<a href="#">CHEM 232</a>	Elementary Organic Chemistry I	3 OR 4
<a href="#">CHEM 233</a>	Elementary Organic Chem Lab I	2
Select one group of courses:		10-12
<a href="#">PHYS 101</a> & <a href="#">PHYS 102</a>	College Physics: Mech & Heat and College Physics: E&M & Modern	
<a href="#">PHYS 211</a> & <a href="#">PHYS 212</a> & <a href="#">PHYS 213</a> & <a href="#">PHYS 214</a>	University Physics: Mechanics and University Physics: Elec & Mag and Univ Physics: Thermal Physics and Univ Physics: Quantum Physics	
<a href="#">IB 150</a>	Organismal & Evolutionary Biol	4
<a href="#">MCB 150</a>	Molec & Cellular Basis of Life	4
<a href="#">MCB 250</a>	Molecular Genetics	3
<a href="#">MCB 251</a>	Exp Techniqs in Molecular Biol	2
<a href="#">MCB 252</a>	Cells, Tissues & Development	3
<a href="#">MCB 253</a>	Exp Techniqs in Cellular Biol	2
<a href="#">MCB 354</a>	Biochem & Phys Basis of Life	3
<a href="#">At least four additional courses at the 300- to 400-level from the Approved List of Advanced Courses for MCB Majors are also required, including one lab course.</a>		15-16

Certain advanced courses may be taken prior to completion of the [MCB 250-MCB 253, MCB 354](#) sequence with permission of an academic advisor. A minimum of 15 hours of 300- or 400-level courses in MCB from the approved list is required.

In addition, undergraduate research ([MCB 290](#) or departmental equivalent) is strongly recommended for students planning to go to graduate school. No more than 10 hours of [MCB 290](#) or departmental equivalent credit may be counted towards the 120 hours required for a degree in MCB.

All foreign language requirements must be satisfied.

UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN

Department of Statistics  
101 Illini Hall  
725 South Wright Street  
Champaign, IL 61820  
USA



December 10, 2014

Melissa Michael  
Assistant Director for Undergraduate Instruction  
School of Molecular and Cellular Biology  
393 Morrill Hall  
M/C 119

[mmichae@illinois.edu](mailto:mmichae@illinois.edu)

Dear Melissa,

Thank you for the opportunity to collaborate with you on the MCB plans to change the undergraduate Statistics requirement to STAT 212, Biostatistics, replacing STAT 100. I am convinced this change will better prepare MCB students for advanced lab courses as well as for modern quantitative biology and biomedical research.

This letter confirms that the Department of Statistics approves of the change in the MCB statistics requirement from STAT 100 to STAT 212. We will coordinate with MCB to ensure that teaching and other course resources shift in a budget neutral way from one course to the other to accommodate the shift in enrollment between the two courses. We do not anticipate any implications for faculty loads or faculty to student ratios.

I look forward to continuing to collaborate with you and your colleagues to ensure that we provide a high quality course in biostatistics that will serve your students well.

Sincerely,



Douglas G. Simpson  
Professor and Chair

UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN

EP.15.58

Office of the Provost and Vice Chancellor  
for Academic Affairs

Swanlund Administration Building  
601 East John Street  
Champaign, IL 61820



March 9, 2015

Gay Miller, Chair  
Senate Committee on Educational Policy  
Office of the Senate  
228 English Building, MC-461

Dear Professor Miller:

Enclosed is a copy of a proposal from the College of Liberal Arts and Sciences to revise the BSLAS in Molecular and Cellular Biology.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Kathryn A. Martensen'.

Kathryn A. Martensen  
Assistant Provost

Enclosures

c: K. Carney  
A. Elli  
B. Wilson  
M. Michael  
A. Edwards

UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN

Office of the Dean

College of Liberal Arts and Sciences  
2090 Lincoln Hall  
702 South Wright Street  
Urbana, IL 61801-3631



March 4, 2015

Kristi Kuntz  
Associate Provost  
Swanlund Administration Building  
MC-304

Dear Kristi:

The Committee on Courses and Curricula on behalf of the Faculty of the College of Liberal Arts and Sciences has voted to approve the following proposal:

**Revision of the BSLAS in Molecular and Cellular Biology**

Please address all correspondence concerning this proposal to me. This proposal is now ready for review by the Senate Educational Policy Committee for proposed implementation in Fall 2015.

Sincerely,

A handwritten signature in black ink that reads "Karen M. Carney".

Karen M. Carney  
Associate Dean

enclosure

C: Brenda Wilson  
Melissa Michael