

<b>Project Name:</b>	<b>Improve Introductory Biology</b>
<b>MIU Round:</b>	Round 1
<b>Sponsor(s):</b>	Institute for Biology Education (IBE)
<b>Coordinator(s):</b>	Seth Blair, Doug Rouse, Jean Heitz, Jon Breschak, Janet Branchaw, David Baum, Jeff Hardin
<b>Partner(s):</b>	L&S Departments of Botany and Zoology, CALS
<b>Report Date:</b>	Year 1, No activity/report; Year 2, August 2011; Year 3, July 2012; Year 4, August 2013

**Project Specific Goal and Measures**

<b>Project Impact Measure(s)</b>	<p>Improve advising services to students majoring in the following majors housed in the IBE: Biology, Biological Aspects of Conservation, and Molecular Biology. Improved advising services is operationalized as student ability to complete routine administrative tasks by drop in help versus scheduling an appointment, ease of scheduling advisor appointments, and resumption of previously-existing peer advising services.</p> <p>Comprehensively reform the introductory Biology course sequence (151/152) to:</p> <ul style="list-style-type: none"> <li>• Increase efficiency by reducing the number of faculty assigned to the course, allowing other faculty to teach more intermediate and upper level biological science courses.</li> <li>• Improve the student experience by committing to a smaller and more stable teaching team and establishing greater coordination among lectures and between lecture and lab components.</li> <li>• Improve the quality of teaching assistants by attracting and retaining TAs who are well-suited to the teaching style of introductory biology. Increase the time and TA resources for small-group work with students, particularly at-risk students.</li> <li>• Enhance the laboratory component for the course sequence by revising the labs, introducing additional biological materials, in order to increase the depth of the experience and to better prepare students for the independent project component of the course.</li> <li>• Better align the Animal Physiology and Evolution and Diversity modules with the Advanced Placement curriculum so that well-prepared high school biology students can be given credit for Biology 151 without missing critical content.</li> <li>• Offer enough sections to allow most students to begin introductory biology by their third semester at UW-Madison.</li> </ul>
<b>Project Impact Data Source(s)</b>	IBE and Academic Planning and Institutional Research (151/152 enrollments and course sequencing).

<b>Baseline Measure(s)</b>	<ul style="list-style-type: none"> <li>• Advising services prior to the addition of administrative support in 2010-11.</li> <li>• Biology 151/152 enrollments, outcomes, funding, and services prior to implementation of the recommendations in the cross-college comprehensive review committee (ongoing as of August 2011, expected completed in Spring 2012).</li> </ul>
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**General MIU Goals and Measures (applicable to project)**

A	Increased access in bottleneck areas	<p>The addition of an receptionist in IBE increased the availability of academic advisors and facilitated easier and faster access to advisors and immediate action on routine administrative matters.</p> <p>Commitment to offering enough sections for most students to enroll in introductory biology by their third semester at UW-Madison. Awarding credit for high Advanced Placement scores will also ease enrollment pressures.</p>
C	Increased capacity for high-impact practices	<p>Research with faculty members is an important component of the Wisconsin Experience and for Biology majors. By increasing the number of faculty there will be additional opportunities for students to participate in biology research.</p>
D	Increased student learning and teaching excellence	<p>An educational expert in pedagogy development and assessment will help instructors develop new pedagogical tools, assess the achievement gap and develop targeted interventions to increase course success. Introductory biology instructors are participating in a learning analytics pilot project designed to increase course success by early identification and intervention with at-risk students.</p>
E	More tenured, tenure-track faculty teaching undergraduate courses	<p>Faculty already are instructors of introductory biology so the number of faculty teaching will not increase. However, the stability and consistency of the faculty instructors will increase.</p>
F	Decreased achievement gaps	<p>Implementation of small-group TA support will target students who are at risk of not succeeding in the course.</p>
G	Attention to diversity in new hires	<p>Faculty positions were advertised and promoted in places designed to attract women and underrepresented minority candidates. These include Women in Science, Hispanic Outlook, Insight, Society for the Advancement of Chicanos and Native Americans in Science etc. Members of the search committee attended WISELI training. These efforts appear to have been successful in attracting a diverse group of candidates.</p>

### Progress Reports

Year 1, 2009-10	No activity or expenditures.
Year 2, 2010-11	<p>IBE hired a receptionist to support its administrative activities such as greeting and assisting students with routine forms and scheduling appointments with advisors. This freed advisors from these routine administrative tasks increasing their availability for advising appointments and allowing renewed effort on a peer-advising program.</p> <p>A cross-college committee, chaired by Bill Tracy, Interim Dean of CALS, is working on a detailed, comprehensive plan for revised instruction in Introductory Biology (Biology/Zoology/Botany 151/152). This committee is expected to wrap up its work in Fall 2011.</p>
Year 3, 2011-12	<p>Completed comprehensive plan for revisions to introductory Biology in Spring 2012. Plans will start being implemented in Fall 2012.</p> <p>Committed to participation in the learning analytics pilot project starting in Fall 2012.</p>
Year 4, 2012-13	<ul style="list-style-type: none"><li>• Completed the majors components of the restructuring of introductory Biology. The administrative home of the courses is moving from IBE to the departments of Botany and Zoology. Restructuring also includes a more stable course administrative structure, a reduction in the number of faculty assigned to teach the course (with increased teaching loads of the assigned faculty), and a commitment to smaller, more stable teaching teams with greater coordination.</li><li>• Conducted two successful faculty searches, one in the Department of Botany and the other in the Department of Zoology. These new faculty will not arrive at UW-Madison until 2013-14.</li><li>• Implemented refined small-group exercises and designed tools for assessing their impact.</li><li>• Use MIU funding to improve laboratory experiences including funding a faculty lab director, hiring a permanent laboratory prep staff position, designing and implementing new labs in Microbial Behavior and Energetics, Diet, and Physiology, implementing and independent project poster session, and hiring a TA to implement an on-line module to scaffold student progress in scientific research.</li><li>• Finalized implementation of the plans to give credit for Biology 151 to student with AP scores of 4 or 5 on the AP biology exam. This required moving some of the modules from Biology 151 to 152 so that materials not as well covered in AP Biology is covered in the subsequent course.</li><li>• Assessment: Hired an assessment coordinator who will be design and implementation of assessment tools particularly focused on assessing the outcomes related to small-group work, the on-line modules, writing interventions and active learning exercises.</li></ul>