

2008 PROGRAM OUTCOMES ASSESSMENT SUMMARY REPORT

PROGRAM: BIOTECHNOLOGY - AAS TRANSFER DEGREE

DATE: 13 DECEMBER 2007

DEMONSTRATION OF LEARNING: *What assignments or projects demonstrate student learning outcomes are achieved?*

[Note: evidence of learning contained in Assessment methods and Findings sections.]

Learning Outcomes	Assessment methods
<p>Familiarity with a standard research and development based molecular biology/biochemistry laboratory with respect to standard procedures and safety issues.</p>	<p>First year students are required to take BIO 195 to determine their knowledge of biotechnology and their interest in pursuing a career in the field. They are coached in writing a preliminary resume and report on the status of local biotech companies. Once students have finished their background course work (i.e. 1st year) they are given a biotech knowledge pretest in the first quarter of their second year (BIO282). A post test and a revised resume are required in BIO196, which is in the last quarter of the program.</p> <p>All students must attend the "annual meeting" (or individual advising) at the end of year one to determine eligibility for the second year. This event functions as a mid-term advising point for students who proceed to the second year. Alumni of the program are invited to participate in the event to talk about their experience in the program and post graduation.</p> <p>BIO 287 includes a capstone research project and presentation of this independent research.</p> <p>BIO 197 is a required internship in industry. Students must contact employers and apply for positions directly and they receive feedback from the employer.</p> <p>Standard procedures and lab safety are an integral part of all the core laboratory courses - BIO282, 285, 286, and 287. These aspects of the laboratory are constantly being assessed by instructor observations as the curriculum is being delivered and students are given verbal feedback immediately.</p>
<p>Competence in current skills as dictated by the Technical Advisory Committee.</p>	<p>The current skill set is delivered through the Core Lab Series (BIO282/285, 286, 287). A practical examination is given on solutions and media preparation in BIO282 - students are critiqued and given written feedback on their ability to prepare standard solutions and media. Through the series the skill set is demonstrated to students and they are asked to perform the demonstrated skills competently. Students are required to keep a laboratory notebook to current industry standards. This notebook, in addition to instructor observations (with immediate verbal feedback), are the primary means by which students' skills are assessed.</p>

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<p>The ability to follow a typical industry Standard Operating Procedure with accuracy and precision.</p>	<p>Standard Operating Procedures (SOP) are formally introduced in the first quarter of the Core Laboratory Series in BIO282. SOPs are provided to students throughout the core laboratory series (BIO282, 285, 286, 287), and they are given the opportunity to follow them and display their accuracy and precision. Instructor observations and immediate verbal feedback to students, as well as laboratory notebooks are the primary means of assessment.</p>
<p>The ability to read and comprehend, on a fundamental level, primary literature and analyze basic experimental results.</p>	<p>Students are encouraged to read the primary literature in all courses in the Core Laboratory Series (BIO282, 285, 286, 287). This topic is formally addressed in the BIO286, in which a quarter-long primary literature project is assigned. This project involves the reading and dissection of a piece of primary literature on biotechnology as a starting point. Students are required to perform literature searches for background information on their primary article. Small group meetings with the instructor to provide guidance and to verbally assess student progress are required. The students' analysis of their assigned primary literature culminates in an oral presentation at the end of the quarter to the class. In addition, searching for primary literature is required for completion of their independent project in BIO287.</p>

EXTERNAL EVIDENCE? *Alumni, employer, Curriculum Review, Technical Advisory Committee feedback?*

A newly formed Technical Advisory Committee met for the first time in January 2008. The old TAC was discontinued because the level of expertise among the group did not match the needs of the program, and too many individuals had become inactive. The new TAC has representatives from student alumni and industry representatives with direct knowledge of the kind of work graduates will be performing.

FINDINGS: *What have you learned from your outcomes assessment activities?*

Many Students entering the program already have a college degree and they are not interested in completing a degree.
 Students transferring from the program to a four year degree have problems with transferability of credits from the core program courses (285, 286, 287).
 An informal follow-up survey shows that one year after graduating, 75% of students who completed the core courses are working in the biotechnology industry.

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ACTIONS TAKEN: *What program changes have you made in the last three years? -- WHAT WAS THE IMPETUS FOR CHANGE?*

No significant changes have been made in the curriculum in the past three years because of the inactive TAC and the reassignment of the lead faculty to the position of acting dean.

ACTIONS PLANNED: *What program changes or new assessment activities are you planning for next year?*

As the new TAC establishes itself, the program would like to introduce certificates for students who already have other degrees and want to seek employment without completing the AAS-T.

Improve the transferability of the core program courses by establishing contact with UW programs and evaluating course content in light of UW policy.

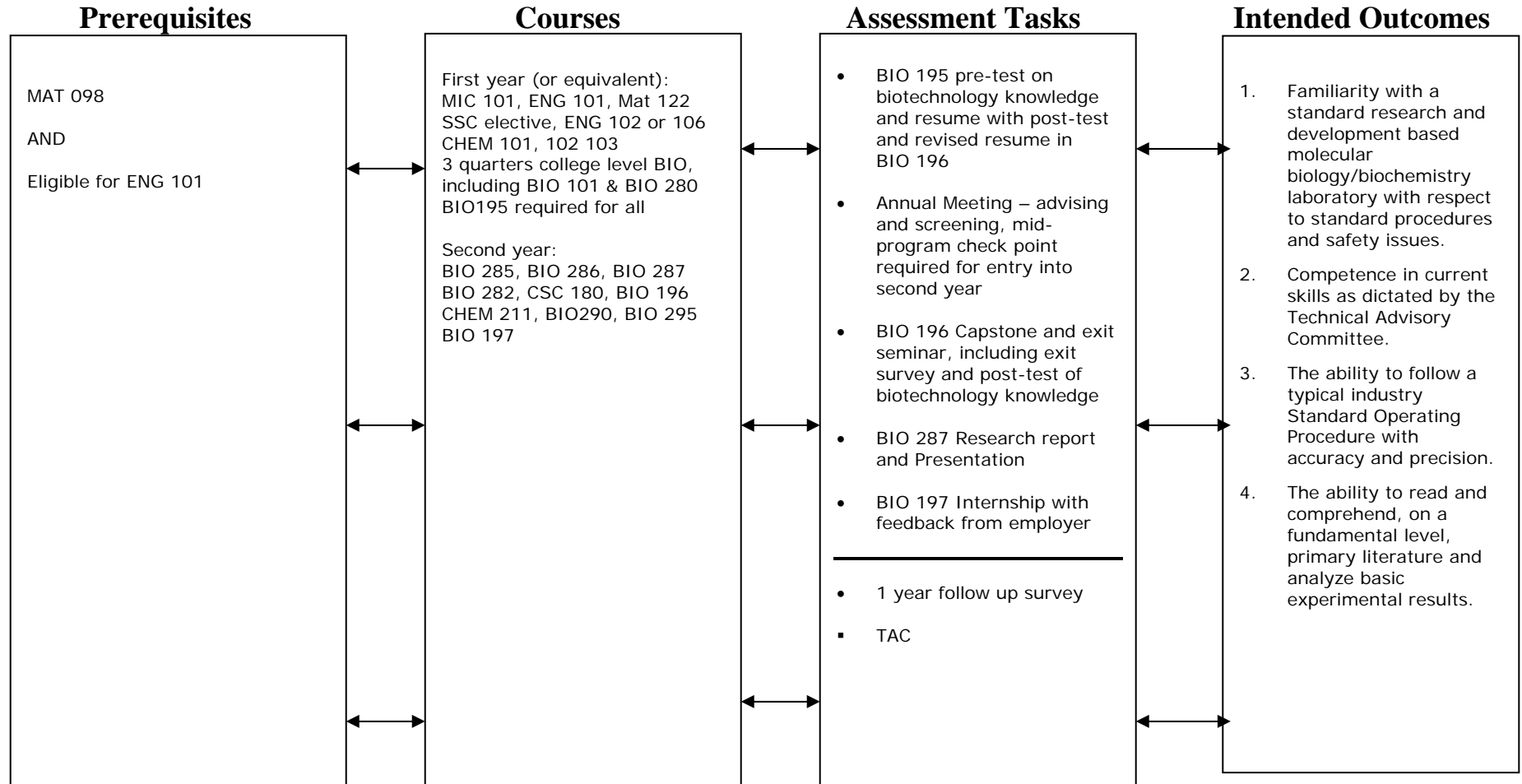
Faculty will begin an annual curriculum review meeting. The purpose of this meeting will be to make necessary adjustments to the core lab courses for the following year based on assessment results, student feedback, and TAC input.

Program Name:

Biotechnology AAS-T Degree

Revised 13 December 2007

Theme(s): Research and development, safety, lab skills and procedures, accuracy, precision, competence
Program Role: Prepare students to be employed in biotechnology industry as lab technicians, quality control technicians or transfer students in bio-science programs at a four year institutions.



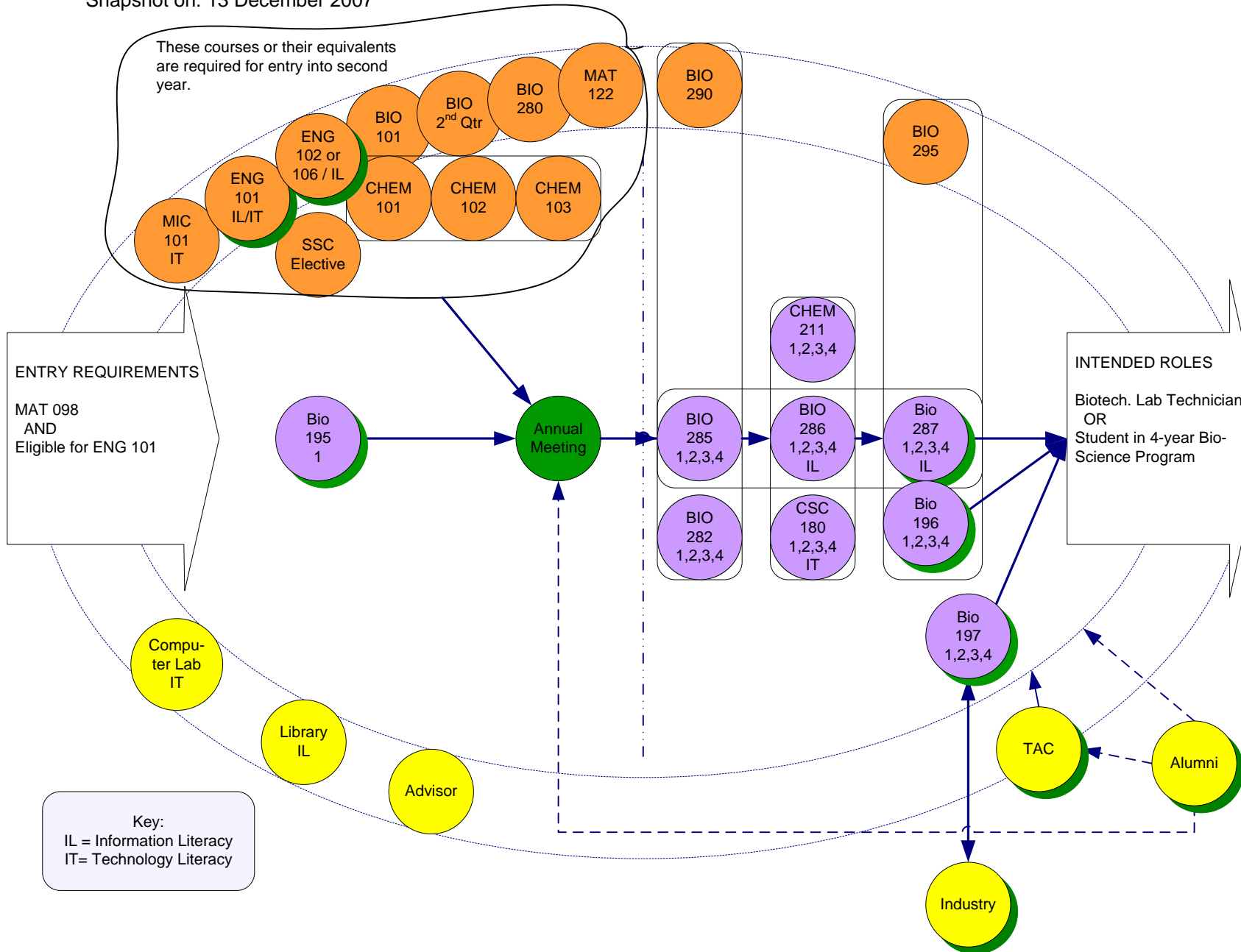
What must students understand to demonstrate the intended outcome?

What skills must students master to demonstrate the intended outcome?

What will students do in here to demonstrate evidence of the outcome?

What do students need to be able to DO “out there” that we’re responsible for “in here”??

Program: Biotechnology – AAS Transfer Degree
 Snapshot on: 13 December 2007



Intended Learning Outcomes:

1. Familiarity with a standard research and development based molecular biology/ biochemistry laboratory with respect to standard procedures and safety issues.
2. Competence in current skills as dictated by the Technical Advisory Committee.
3. The ability to follow a typical industry Standard Operating Procedure with accuracy and precision.
4. The ability to read and comprehend, on a fundamental level, primary literature and analyze basic experimental results.

Program Assessment Inventory

Program: Biotechnology – AAS Transfer Degree 13 December 2007

Assessment methods used to determine that students are prepared to succeed and that they have achieved the program learning outcomes when they complete degrees or certificates.

	<i>Early program</i>	<i>Mid program</i>	<i>End of program</i>
<i>Students are prepared to learn (prerequisites)</i>			
ASSET test scores			
COMPASS test scores	<i>Prerequisite if no recent college level math or English</i>		
SLEP test scores			
Other?			
<i>Students are assessed as they move through the program</i>			
Competencies assessment			
Internship feedback			BIO 197
Pre-Mid-Post assessment	BIO 195	BIO 282-285	BIO 196
Service Learning experience feedback			
Student course evaluations	<i>every quarter</i>		
Student focus groups		<i>annual meeting</i>	
Student grades	<i>every quarter</i>		
Student interviews			
Student self assessment			
Student surveys			<i>exit survey</i>
<i>Students are assessed as they complete the program</i>			
Completion statistics			<i>by college</i>
Capstone projects			BIO 287
Graduation statistics			<i>by college</i>
Portfolios			
Presentations			BIO 287
<i>External assessment data is collected</i>			
Transfer rates			<i>by college</i>
Employer surveys			
Technical Advisory Committee			<i>yes</i>
License certification success rates			
Performance in 4 year programs			
Employment rates			<i>1 year follow up survey</i>
Salary statistics			
Survey of former students			
Other?			

Biotechnology (AAS-T)

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