Academic Transfer Pathways **Massachusetts Department of Higher Education**
March 27, 2015 Convening **Massachusetts Bay Community College**

Biology Convening Notes

Disciplinary Sector Leaders

Community Colleges: Tom Montagno, Mount Wachusett Community College
UMass: Marietta Schwartz, University of Massachusetts Boston

Faculty Attendees:

Ben Benton	bbenton@qcc.mass.edu	Quinsigamond Community College
Bruce Byers	bbyers@bio.umass.edu	University of Massachusetts Amherst
Andrea Cutone	acutone@northshore.edu	North Shore Community College
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Jay Gump	gumpj@gcc.mass.edu	Greenfield Community College
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Jessie Klein	kleinj@middlesex.mass.edu	Middlesex Community College
Joseph Maciaszek	jwmaciaszek@stcc.edu	Springfield Technical Community College
Jenna Mendell	jennifer.mendell@bridgew.edu	Bridgewater State University
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Shaina Roy	shaina_roy@uml.edu	University of Massachusetts Lowell
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Nikolaus Sucher	nsucher@rcc.mass.edu	Roxbury Community College
Ken Thomas	kthomas@necc.mass.edu	Northern Essex Community College
Kevin Wentworth	kwentworth@hcc.edu	Holyoke Community College

Foundational Courses

Biology I	Chemistry I	Pre-Calculus
Biology II	Chemistry II	

Additional Recommended Courses

Organic Chemistry I	Physics I	Calculus
Organic Chemistry II	Physics II	

The goal of the meeting was to have system-wide agreement on what the foundational courses are for the first two years of study in the discipline and a commitment that our campuses will accept these courses and count them towards the baccalaureate degree. Transfer professionals also attended the meeting and provided insight on a number of issues.

Disciplinary Segmental Leaders requested that faculty submit syllabi for the foundational courses prior to the meeting in order to conduct a review that would allow them to identify core course components. During the meeting, faculty agreed with the core components for Biology I (Cellular) and Biology II (Organismal).

Following this exercise, faculty engaged in a conversation regarding community college course alignment. If a course covered the topics in the core course components sheet, it would be considered appropriate for a Biology major. Course that meet this criteria are listed in the Community College Course Alignment sheet.

Given that different topics are introduced in different courses, faculty agreed that students would be allowed to transfer these courses if they completed the sequence (Biology I/Cellular ad Biology II/Organismal) at the same institution.

Faculty also identified the following lab competencies as being essential for transfer:

- Collect and analyze data;
- Learn the use of standard scientific tools (equipment such as microscopes; software as appropriate; DNA analysis, which may include electrophoreses);
- Quantitative reasoning skills;
- Some study of gross and microscopic anatomy (actual dissection being optional);
- Understand and apply the scientific method;
- Write a scientific lab report;
- Work in teams.

Faculty expressed an interest in sharing the syllabi used during the meeting could be shared. They have been asked to use the Yammer site to upload their syllabi. To join Yammer, please visit: https://www.yammer.com/massachusettsacademictransferpathways.

Transfer professionals were asked to notify Lois Alves (lalves@bhe.mass.edu) should any changes need to be made to the Pathways sheets.

Biology I (Cellular) – Essential Core Course Competencies/Components

1	Characteristics of Life/Classification Scientific Method Evolution/Natural Selection
2	Basic Chemistry – atomic structure, bonding, properties of water
3	Biomolecules – Carbohydrates, Lipids, Proteins, Nucleic Acids
4	Cell Structure/Function/Membranes
5	Energy Flow/Enzymes
6	Respiration – Glycolysis, Krebs Cycle, ATP formation, Fermentation
7	Photosynthesis – Light Dependent and Independent Rxs/ C4 and CAM
8	Cell Cycle/ Mitosis/Meiosis
9	Patterns of Inheritance/ Mendelian Genetics/Chromosome Structure
10	Molecular Genetics – DNA Duplication/Transcription/Translation/Mutations
11	Biotechnology – Genomics/Cloning/Therapies

Biology II (Organismal) – Essential Core Course Competencies/Components

1	Evolution/Speciation/Hardy Weinberg Equation/History Timeline/Phylogeny
2	Origins of Life/Microbial Life Diversity/Prokaryotes/Protists
3	Fungal Kingdom/Alternation of Generations/Sexual, Asexual Modes
4	Plant Kingdom/Vascularization/Angiosperms/Gymnosperms/Reproduction
5	Invertebrates Diversity
6	Animal (Invertebrate and Vertebrate) Diversity
7	Animal Behavior/Systems (Digestive, Nervous, Reproduction)
8	Ecology/Communities/Conservation Biology
9	Characteristics of Life/Classification

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Community College Course Alignment

Community College	Course #	Adequately addresses Essential Core Competencies/ Components Yes, No, More Information Needed	Which type of biology is this?
Berkshire	BIO 101 General Biology I	_____ Yes _____ No _____ Need More Info	Not present at meeting
	BIO 102 General Biology II	_____ Yes _____ No _____ Need More Info	Not present at meeting
Bristol	BIO 121 Fund of Bio Sci I	✓ Yes _____ No _____ Need More Info	Cellular
	BIO 122 Fund of Bio Sci II	✓ Yes _____ No _____ Need More Info	Organismal
Bunker Hill	BIO 195 Gen Biology I & Lab	✓ Yes _____ No _____ Need More Info	Cellular
	BIO 196 Gen Biology II & Lab	✓ Yes _____ No _____ Need More Info	Organismal
Cape Cod	BIO 151 General Biology I	✓ Yes _____ No _____ Need More Info	Cellular
	BIO 152 General Biology II	_____ Yes ✓ No _____ Need More Info	Missing Plant and Fungi Kingdoms (Organismal)
Greenfield	BIO 126 Biology I	✓ Yes _____ No _____ Need More Info	Cellular
	BIO 127 Biology II	✓ Yes _____ No _____ Need More Info	Organismal
Holyoke	BIO 107 Gen Bio I: Intro Cell Funcs	✓ Yes _____ No _____ Need More Info	Cellular
	BIO 108 Gen Bio II: Di/ Life/Earth	✓ Yes _____ No _____ Need More Info	Organismal
MassBay	BI 110 Principles of Biology I	✓ Yes _____ No _____ Need More Info	Cellular
	BI 120 Principles of Biology II	✓ Yes _____ No _____ Need More Info	Organismal
Massasoit	BIOL 121 Biological Princ I	✓ Yes _____ No _____ Need More Info	Cellular
	BIOL 122 Biological Princ II	✓ Yes _____ No _____ Need More Info	Organismal
Middlesex	BIO 131 General Biology	✓ Yes _____ No _____ Need More Info	Cellular
	BIO 132 General Biology	✓ Yes _____ No _____ Need More Info	Organismal
Mt Wachusett	BIO 109 Biology I	✓ Yes _____ No _____ Need More Info	Cellular
	BIO 110 Biology II	✓ Yes _____ No _____ Need More Info	Organismal
North Shore	BIO 105 General Biology 1	✓ Yes _____ No _____ Need More Info	Cellular
	BIO 106 General Biology 2	✓ Yes _____ No _____ Need More Info	Organismal
Northern Essex	BIO 111 Intro to Biology I	✓ Yes _____ No _____ Need More Info	Cellular
	BIO 112 Intro to Biology II	✓ Yes _____ No _____ Need More Info	Organismal
Quinsigamond	BIO 107 Princ of Biology I	✓ Yes _____ No _____ Need More Info	Cellular
	BIO 108 Princ of Biology II	✓ Yes _____ No _____ Need More Info	Organismal
Roxbury	SCI 103 Biology I	✓ Yes _____ No _____ Need More Info	Cellular
	SCI 104 Biology II	✓ Yes _____ No _____ Need More Info	Organismal
Springfield	BIOL 106 Biology 1	✓ Yes _____ No _____ Need More Info	Cellular – is being renumbered to Bio 201
	BIOL 206 Biology 2	✓ Yes _____ No _____ Need More Info	Organismal – is being renumbered to Bio 202