



**Oregon
Transfer Compass**
STATEWIDE ARTICULATION
AGREEMENT: MAJOR
TRANSFER MAP IN BIOLOGY

A statewide transfer agreement that identifies the community college courses needed to transfer to any Oregon public university as a junior seeking a Bachelor of Science in Biology.



Statewide Transfer Articulation Agreement:

Major Transfer Map in Biology

90-100 Credits or Optimal Transfer Point

From: All Oregon Community Colleges

To: All Oregon Public Universities

Introduction: Major Transfer Maps (MTMs) represent a streamlined path for students transferring from an Oregon community college to an Oregon university who know which major/bachelor's degree program they want to pursue. In contrast to other statewide transfer tools that prioritize university general education requirements (i.e. AAOT and ASOT), MTMs specify clear course-taking paths necessary for on-track progress towards a specific major/bachelor's degree, with a guarantee of transfer from any Oregon community college to any Oregon public university. MTMs build on the 30-credit general education foundation defined by the generic Core Transfer Map (CTM), although MTMs may specify particular relevant/required General Education courses as part of the 30-credit CTM component of the MTM.

The statewide Biology Major Transfer Map (MTM) will use the format of an Associate of Science Transfer degree.

The MTMs identify the optimal and specific set of community college courses students need to take to transfer efficiently into the major at the university. The successful completion of the MTM allows students to receive status at the public university, based on the number of academic credits referenced in the transfer agreement, including at least 30 credits of general education satisfied, that is comparable to the status of students with the same number of academic credits in the major course of study who began their postsecondary studies at the public university. The students will not be required to retake a course, as long as the minimum required grades have been earned.

Students must have earned a cumulative grade point average of 2.0 and meet the residency requirements at the community college awarding the MTM.

When students complete an MTM, the general education courses in the "Core Transfer Map" portion of the MTM, for which minimum required grades have been earned, are guaranteed to transfer into general education, degree, or major requirements for a bachelor's degree at any Oregon public university (ORS 350.404). However, while CTM-related courses are guaranteed to transfer into general education, degree, or major requirements, students completing an MTM will not be awarded a CTM also.

Students who want to transfer prior to completing the MTM should talk with their community college advisor and an advisor at their target university prior to transfer about how their courses will count towards general education requirements and degree/major requirements. If the MTM is not awarded advisors can guide students to determine if they are eligible for a CTM.

Students are responsible for informing the admissions counselor or intake advisor at their receiving four-year institution that they are completing an MTM. It is important for students to understand that completing the MTM in two years and the bachelor's degree in four years requires them to complete a minimum average of 15 credits per quarter (or 45 credits per year).

The guarantees and limitations below describe the minimum requirements to which all participating institutions have agreed. If an institution is not meeting the guarantees described below a complaint can be filed with the Oregon Transfer Advisory Committee (OTAC).¹

Part 1: Guarantees

Students who complete all the requirements of an MTM (i.e. an MTM associate's degrees or an MTM non-degree package when optimal transfer requires fewer than 90 credits) as defined in the specific MTM agreement, who have earned the minimum required grades and a cumulative 2.0 GPA or higher, meet residency requirements, and who are admitted to the receiving institution's corresponding major/degree program are guaranteed the following:

1. Status within the major at the public university that is comparable to the status of students with the same number of academic credits in the major course of study who began at the public university (when the MTM is equal to at least 90 credits this would equate to receiving "junior status in the major course of study at the public university").
2. Eligibility to graduate following the degree/major requirements in effect at the university during the academic year the student first enrolled in the community college that awarded the MTM. If the student does not complete the degree within 7 years of the first enrollment at the community college awarding the MTM, they should meet with an advisor to determine which catalog to use.
3. All courses in the MTM will transfer individually. If a student transfers before completing the MTM, all courses will still transfer but may not apply in the same way as they would if the MTM was completed. If the CTM has been awarded, the guarantees inherent in the CTM apply.
4. The ability to file a complaint with the Oregon Transfer and Articulation Committee (OTAC) if the guarantees of the MTM are not being met. OTAC will review complaints submitted to the Higher Education Coordinating Commission (HECC) or to OTAC regarding Oregon's statewide transfer tools and degrees and recommend next steps that support dispute resolution. Note:
 - ✓ Students should first follow their home institution's internal complaint process (e.g. talk to their academic advisor, academic unit, Registrar, or Provost)
 - ✓ The HECC has authority to handle student complaints but only if they are related to discrimination or retaliation
 - ✓ While OTAC does not have legal authority over transfer complaints, as the only statewide transfer advisory body, OTAC can make recommendations and assist institutions and students in resolving compliance issues.
5. Students who successfully complete the MTM at a community college will have the MTM notated on their transcript. If the MTM takes the form of an associate's degree, it will be reflected in the standard degree posting format used by the community college. If the MTM is not an associate's degree, but rather an optimal transfer point with fewer than 90 credits, it will be posted as a notation on the community college transcript.

Part 2: Limitations

¹Sections of this contract are modified versions of contracts from Colorado and Washington.

1. Completion of the prescribed curriculum in the statewide transfer articulation agreement does not guarantee admission to a participating receiving institution. Students must meet all admission and application requirements at the receiving institution in place at the time of admission, including the submission of all required documentation by stated deadlines.
2. Minimum grades required for general transfer and for application to major requirements and prerequisites may vary by each Oregon public university and by each degree/major. Each MTM agreement will specifically list the minimum grade requirements that will guarantee transfer including minimum required grades for major courses and Pass/No Pass limitations. All schools accept a grade of a "C -" or better in all general education courses. Students should contact the admissions counselor or intake advisor at the university they intend to transfer to for more information.
3. Completion of an MTM and admission to a receiving institution does not guarantee enrollment in a specific degree program. Some programs at receiving institutions have controlled and/or competitive entry due either to space limitations or academic requirements.
4. The credit and course transfer guarantees described in the specific MTM agreements apply only to the specific degree programs covered by the agreement. Therefore, if a student changes to a new major some courses may not apply the same way towards the new major as they would for the original major. When students change majors the old MTM major guarantees may no longer apply and receiving institutions will evaluate applicability of transfer on a course-by- course basis.
5. AP (Advanced Placement) and IB (International Baccalaureate) credit:

- ✓ General Education Courses in the MTM:

AP and IB articulated credits used to meet the general education components of the Major Transfer Map will transfer, and are guaranteed to fulfill general education requirements at the receiving institution, as long as the articulated credits are listed on the Advanced Placement and International Baccalaureate Statewide *Course Credit Policy* found on the HECC website.

- ✓ AP (Advanced Placement) and IB (International Baccalaureate) in the MTM:

Using the current *AP and IB Statewide Course Credit Policy* as a reference, the Major Transfer Map workgroup will assess how AP/IB exam scores apply to the MTM (range of credits and course articulations). In particular, the MTM workgroup will identify whether the credit range and course articulation of AP/IB exam scores differ among the 17 community colleges and 7 public universities in ways that create transfer misalignment for students earning the MTM.

The workgroup will refer all areas of misalignment to the AP/IB Statewide Policy Group, which will work with the higher education institutions' appropriate representatives (including faculty and academic leadership) to resolve the areas of misalignment by establishing common range of credits and defined articulations across the 17/7 so that AP/IB exam credit awarded at any community college will transfer to all public universities and apply as intended in the MTM.

If 17/7 alignment in range of credits and course articulation for AP/IB exam scores is not possible, the MTM workgroup will determine whether the differences constitute acceptable and warranted variance within the MTM. If so, the workgroup will recommend the variance to OTAC when it submits the MTM to OTAC for the approval

process. If the MTM workgroup determines that uniformity is necessary, and a particular institution elects not to conform, that school is choosing not to be a participant in that particular MTM.

The Biology MTM group will work with the AP/IB Policy Workgroup to resolve any outstanding AP/IB issues by December 31, 2020.

6. Please note that each Oregon public university has differing policies on institutionally administered exams (sometimes called Challenge Exams) and students should contact the admissions counselor or intake advisor at the university students intend to transfer to for more information.

7. Students should consult with advisors at their community college and receiving university if they have additional questions.

Part 3: Institutional Obligations

1. Oregon public universities and community colleges, under advisement from OTAC and HECC, will build an alert mechanism into their curriculum review process for changes related to courses, programs, or admission that may impact the MTM.

- ✓ The institution proposing a change in required or pre-requisite courses, with potential to impact lower-division course taking will alert their Registrar and Major Transfer Map group to review the change.
- ✓ If the proposed change creates a need to modify lower-division course taking as defined in the existing MTM, the OTAC representative from the particular MTM group will bring the issue to OTAC for review to determine if updates need to be made to the agreement.
- ✓ All public higher education institutions who are signatories of the agreement are expected to stay in alignment with the approved MTM. Changes to courses included in the MTM that will affect their transferability must be approved by the MTM group and OTAC before taking effect.
- ✓ MTM groups are expected to meet annually or as needed to ensure continued alignment and the effective dates will be reflected in each MTM. Catalog rights follow the MTM.
- ✓ If valid reasons exist that prevent sufficient alignment, a given institution may have to exit the agreement. In such cases, the Provost of the university must notify OTAC and work out an effective timeline for leaving the agreement such that the university honors the catalog year guarantees and provides a workable teach-out plan so students in the pipeline are held harmless.

2. Oregon public higher education institutions agree that where university-specific curricular variance exists within the MTM, it is identified and justified. Acceptable justifications should be related to student benefit, necessity for academic success in meeting future requirements at the junior/senior/graduate school/employment level, and immovable external requirements such as accreditation requirement differences.

3. Participating institutions agree to continue to work toward maximizing course alignment as much as possible with the goal of awarding direct equivalency for all MTM courses, even when a transferring student has not completed the entire MTM.

Part 4: Prescribed Curriculum

The Biology Major Transfer Map (MTM) outlines Oregon community colleges coursework to complete in order to transfer seamlessly to any Oregon four-year public university to earn a bachelor of science (B.S.) in biology. The Biology MTM is intended for students who know they want to transfer and earn a B.S. in biology, but who are unsure of their intended transfer destination. Students should work with their community college advisor to ensure they properly fulfill the requirements of this Biology MTM.

Students who complete courses that fit the listed Biology MTM categories and complete all science series coursework at one school can expect that all of their courses will transfer into general education or major requirements at any Oregon public university. Students who complete all of the listed coursework and have a total of 90 credits can also complete an associate degree. Because completion of the listed coursework or an associate degree is not required, students can transfer to their intended university at any time. The optimal transfer time will generally be a fall term when students have completed any science series in progress, and that is a more important consideration than having all of the listed courses or categories completed. **The course substitutions and recommendations listed below should only be considered by students who are certain of both their intended major and transfer destination.**

Note that in order for a student to successfully transfer to an Oregon public university, students must: 1) earn a grade of a “C-” or better in courses in the major; 2) take courses in the major for a grade—they will not be accepted as “pass/no pass”; and 3) earn a cumulative grade point average of 2.0. Students must also regularly meet with an advisor. Students are strongly encouraged to: 1) seek advising before registering for their first term of community college; 2) seek advising after they have completed the 30-35 credits of the Core Transfer Requirements; and 3) seek advising and meet with a transfer coordinator before registration opens at the beginning of the students second year in college. Students should also be aware that if they want to complete this Major Transfer Map in two years, they should take an average of 45 credits per year (average of 15 credits per quarter). Finally, to earn an associate degree, students will need to successfully complete at least 90 credits.

All seven public university in Oregon offer a biology B.S. degree:

Portland State University: (<https://www.pdx.edu/biology/biology-major-requirements>)

University of Oregon: (<https://www.eou.edu/biology/>)

Eastern Oregon University: (<https://www.eou.edu/biology/>)

Oregon Institute of Technology: (<https://www.oit.edu/academics/degrees/health-sciences>)

Oregon State University: (<https://catalog.oregonstate.edu/college-departments/science/school-life-sciences/integrative-biology/biology-bs-hbs/>)

Southern Oregon University: (<https://sou.edu/academics/biology/programs/biology-ba-bs/>)

Western Oregon University: (<http://www.wou.edu/biology/degrees-programs/biology-major-requirements/>)

CORE TRANSFER REQUIREMENTS

See an advisor for recommended courses before your first term

<i>Writing</i>		
1 course	WR121	3-4
<i>Arts & Letters</i>		
1 st course	Choose from AAOT-approved courses	3-4
2 nd course	Choose from AAOT-approved courses	3-4
<i>Social Sciences</i>		
1 st course	Choose from AAOT-approved courses	3-4
2 nd course	Choose from AAOT-approved courses	3-4
<i>Natural Sciences</i>		
1 st course	Biology 211 or 221 ^{1,2} ¹ Biology 211, 212, and 213 or Biology 221, 222, 223 must be taken at the same institution. ² The BI 21x and BI 22x series are not interchangeable by term (e.g. BI 211 is not equivalent to BI 221).	4-5
2 nd course	Biology 212 or 222 ^{1,2} ¹ Biology 211, 212, and 213 or Biology 221, 222, 223 series must be taken at the same institution. ² The BI 21x and BI 22x series are not interchangeable by term (e.g. BI 212 is not equivalent to BI 222).	4-5
<i>Mathematics</i>		

1 course	Math 111 ¹ ¹ Students who test out of Math 111 should take Math 112.	4-5
<i>At least 1 Core Transfer Requirement course must also be an AAOT-approved Cultural Literacy course</i>		
Core Transfer Requirement Total		30-35
ADDITIONAL MAJOR TRANSFER MAP COURSES <i>See an advisor for recommended courses</i>		
<i>General Education</i>		
Writing	Writing 122 or Writing 227 *OSU accepts either but recommends 227 *WOU & UO accepts either but recommends 122	3-4
Math	Math 112 ¹ ¹ Students who test out of Math 112 may substitute a recommended elective (see recommended electives listed below).	4-5
<i>Major Requirements</i>		
Biology	Biology 213 or BI 223 ^{1,2} ¹ Biology 211, 212, and 213 or Biology 221, 222, 223 series must be taken at the same institution. ² The BI 21x and BI 22x series are not interchangeable by term (e.g. BI 213 is not equivalent to BI 223).	4-5
Chemistry	3-course General Chemistry sequence with lab	12-18
Physics/Math/ Chemistry	<u>PICK TWO SEQUENCES</u> <i>Strongly recommend seeing an advisor for assistance with choosing sequences which best match your specific academic, pre-professional, and career goals</i> <ul style="list-style-type: none">• 3-course General Physics (algebra or calculus)• MTH 251 (Differential Calculus) & 252 (Integral Calculus)^{1,2}• 3-course Organic Chemistry sequence^{3,4} ¹ Students transferring to PSU may substitute STAT 243 & 244 for MTH 251 & 252. ² Students transferring to EOU are required to take MATH 241 (Survey of Calculus) instead of MATH 251 and 252. MATH 251 may serve as a substitute for MATH 241. ³ Students transferring to OSU are strongly recommended to take the Organic Chemistry sequence. ⁴ Students considering pre-medical, pre-dental, and pre-pharmacy programs should consider Organic Chemistry sequence. Courses in sequence must be taken at the same institution.	20-33
Additional MTM Courses Total		47-65
<i>Electives</i>	Elective courses to reach 90 credits (see recommended electives listed below)	0-16
MAJOR TRANSFER MAP TOTAL		90-100

RECOMMENDED ADDITIONAL ELECTIVES IF NEEDED TO REACH 90 CREDITS

See an advisor for recommended courses

EOU	OIT	OSU	PSU	SOU	UO	WOU
<ul style="list-style-type: none"> • MTH 243 • Pick a 3rd sequence from physics, math, or chemistry series listed above 	<ul style="list-style-type: none"> • 4-6 credits social science • 1-3 credits humanities • 2 credits lower division health biology 	<ul style="list-style-type: none"> • COMM 111 • 3 credits Fitness • 1 Difference, Power and Discrimination course • Pick a 3rd sequence from physics, math, or chemistry series listed above 	<ul style="list-style-type: none"> • STAT 243 (if not taken to fulfill Physics, Math, Chemistry area) • Pick a 3rd sequence from physics, math, or chemistry series listed above 	<ul style="list-style-type: none"> • MTH 243 • Pick a 3rd sequence from physics, math, or chemistry series listed above 	<ul style="list-style-type: none"> • WR 122 • Pick a 3rd sequence from physics, math, or chemistry series listed above 	<ul style="list-style-type: none"> • WR 122 • Pick a 3rd sequence from physics, math, or chemistry series listed above

Part 5: Signature of Participating Institutions

**Biology Major Transfer Map: Statewide Articulation Agreement
Participants to the Agreement**

The Oregon Transfer and Articulation Committee (OTAC) reviewed this agreement on November 27, 2018 and forwarded it for approval by the chief academic officers of Oregon’s public universities offering a Bachelor of Science in Biology degree and the chief academic officer of Oregon’s community colleges (*Note: Signatures are on file at the Higher Education Coordinating Commission*)

Signatures on file:

_____	_____	_____	_____
Eastern Oregon University	Date	Oregon State University	Date
_____	_____	_____	_____
Portland State University	Date	Oregon Institute of Technology	Date
_____	_____	_____	_____
Southern Oregon University	Date	Western Oregon University	Date
_____	_____	_____	_____
University of Oregon	Date	Blue Mountain Community College	Date
_____	_____	_____	_____
Central Oregon Community College	Date	Chemeketa Community College	Date
_____	_____	_____	_____
Clackamas Community College	Date	Clatsop Community College	Date
_____	_____	_____	_____
Columbia Gorge Community College	Date	Klamath Community College	Date
_____	_____	_____	_____
Lane Community College	Date	Linn-Benton Community College	Date
_____	_____	_____	_____
Mt. Hood Community College	Date	Oregon Coast Community College	Date



Portland Community College	Date
Southwestern Community College	Date
Treasure Valley Community College	Date

Rogue Community College	Date
Tillamook Bay Community College	Date
Umpqua Community College	Date

Part 6: Biology Major Transfer Map Participants

Group Coordinators:

Public Universities:

Laura Mahrt	Eastern Oregon University
Lloyd Parratt	Oregon Institute of Technology
Lori Kayes	Oregon State University
Brock McLeod	Oregon State University
Leah Tuor	Portland State University
John Roden	Southern Oregon University
Cristin Huslander	University of Oregon
Erin Baumgartner	Western Oregon University

Community Colleges:

Sascha McKeon	Blue Mountain Community College
Sarah Fuller	Central Oregon Community College
Wynn Cudmore	Chemeketa Community College
Tory Blackwel	Clackamas Community College
Nichole Warwick	Clatsop Community College
Christine Andrews	Lane Community College
Wally Shriner	Mt. Hood Community College
Linda Ferguson-Kolmes	Portland Community College
Katie Strong	Rogue Community College
Robert Pietruszka	Tillamook Bay Community College
Arwyn Larson	Treasure Valley Community College
Shauna McNulty	Umpqua Community College

Higher Education Coordinating Commission Staff:

Kia Sorensen	Office of Academic Policy & Authorization
Julia Steinberger	Office of Community College & Workforce Development

Part 7: Oregon Transfer Advisory Committee Members 2018-19

Chair: John Hamblin, Executive Dean, Student Development, Mt. Hood Community College

Incoming Chair: Sarah Witte, Provost & Vice President for Academic Affairs, Eastern Oregon University

Elizabeth Brand Cox, Executive Director, Student Success Center, Oregon Community College Association

Dana Richardson, Executive Director for the Council of Presidents, Oregon Public Universities Council of Presidents

Sal Castillo, Director-Institutional Research, Oregon State University

Erin Mulvey, Transfer Transitions Coordinator, Div. Student Affairs-Academic Achievement, Oregon State University

Carrie Randall, Academic Advisor, Linn-Benton Community College

Frances White, Professor and Department Head, Anthropology, University of Oregon

Chuck Kalnbach, Thomas E. Wildish Distinguished Senior Instructor II of Management, University of Oregon

Seth Anthony, Associate Professor, Oregon Institution of Technology

Ann Cary, Instructor math, Portland Community College

Blake Hausman, Instructor DE Reading, Writing & English, Portland Community College

Kendra Cawley, Dean of Academic Affairs, Academic Affairs, Portland Community College

John Copp, History, Political Science Instructor, Department Chair, Columbia Gorge Community College

Susan Faller, Senior Instructor II, Southern Oregon University

Erin Baumgartner, Director of General Education; Interim Associate Provost for Academic Programs and Effectiveness, Western Oregon University

Thaddeus Shannon, Associate Professor, Computer Science, Western Oregon University

Kathy Smith, Associate Professor of Math, Central Oregon Community College

Kate Sullivan, OWEAC Chair, Professor Writing, Lane Community College

Christy Weigel, Instructional Coordinator: Articulation and Transfer, Mt Hood Community College

Rick DeBellis, Associate Director for Enrollment Management, Degree Partnership Programs and Transfer Student Services, Oregon State University

Melissa Frey, Dean & Registrar, Student Recruitment, Enrollment and Graduation Services

Director Enrollment Services/ Registrar, Chemeketa Community College

Cindy Baccar, Associate Vice Provost & University Registrar, Academic Affairs, Portland State University

Linda Samek, Provost, George Fox University

David Plotkin, Vice President of Instruction and Student Services, Clackamas Community College

Patrick Crane, Director, Community Colleges and Workforce Development

Veronica Dujon, Director, Academic Policy and Authorization

Appendix A. Biology MTM Subcommittee Pass/No Pass Policy

Context: Community college curriculum managers and registrars in 2021 asked for greater clarification on the P/NP policy for courses in the major for each MTM group, and proposed groups vote on the following language.

- **Option 1:** Group decides course required for the major must be taken for a letter grade in order to apply them to the biology requirements (see below). If completed with a grade of “P”, courses will NOT apply to the Biology MTM requirements.”

The options are options drafted by community college curriculum managers and registrars. The other two options that were NOT preferred by the group were the following:

- **Option 2:** Group decides that ANY courses taken as P/NP and completed with a grade of “P” WILL apply to the Biology MTM requirements. A note will be added to the MOU and CCWD Handbook indicating that some institutions will not accept “P” grades for some, or all Biology courses required for the major and that students are therefore strongly advised to avoid potential transfer issues by either a) taking all such courses for a letter grade, and/or b) meeting with an advisor to see where policies may vary across institutions and choose their grading options accordingly.
- **Option 3:** No uniform policy. A note will be added to the MOU and CCWD Handbook indicating that some institutions will not accept “P” grades for some or all math, chemistry, physics, and/or Biology courses required for the major and that students are therefore strongly advised to avoid potential transfer issues by either a) taking all such courses for a letter grade, and/or b) meeting with an advisor to see where policies may vary across institutions and choose their grading options accordingly.

On December 8, 2021, the Biology MTM Subcommittee voted unanimously for Option 1.

Core Transfer Map	CC Credits	EOU	OIT	OSU	PSU		SOU	UO		WOU
Writing-WR 121	3-4	WR 121 (3-4 credits)	Writing 121 (3 credits)	1 of 1 Writing I course (3 credits)	1 of 2 University Writing courses ¹ (3-4 credits)		1 of 1 Strand A – Communication Goals course (3-4 credits)	WR 121 (3 credits)		1 of 2 Foundations: Writing courses
Arts & Letters: 2 courses	6-8	2 Aesthetics and Humanities courses (6-8 credits) 2 Artistic Process and Creation courses (6-8 credits)	2 Humanities courses (6-8 credits)	1 of 1 Literature/Arts course (3-4 credits) 1 of 1 Western Culture course (3-4 credits) 1 of 1 Cultural Diversity course (3-4 credits)	<u>BA</u> 6-8 credits of 12 credits required in Arts & Letters courses²	<u>BS</u> 12 credits of Arts & Letters or Social Science courses	2 of 3 Strand E – Humanities courses (6-8 credits)	2 Arts and Letters courses (6-8 credits)		2 of 2 Exploring Knowledge: Literary and Aesthetic Perspectives courses
Social Science: 2 courses	6-8	2 Social Science courses (6-8 credits)	2 Social Science courses (6-8 credits)	1 of 1 Social Processes and Institutions course (3-4 credits)	<u>BA</u> Satisfies the 8 credit Social Science/ Science requirement.	****Additional credits apply to FRINQ	2 of 3 Strand F – Social Sciences courses (6-8 credits)	2 Social Science courses (6-8 credits)		2 of 2 Exploring Knowledge: Social, Historic, and Civic Perspectives courses
Natural Science: First 2 courses in 3-course Principles of Biology sequence	8-10	Biology 211 & 212 count towards major & SMI (8-10 credits)	2 Science/ Mathematics courses; lab science requirement met (8-10 credits)	2 of 3 Biological and Physical Science Courses (8-10 credits) (also applied to major) 1 of 1 Mathematics course (4 credits)	****Additional credits apply to FRINQ	<u>BS</u> 8-10 of 12 credit Science (8 w/lab) requirement (8-10 credits)	2 of 3 Strand G – Science courses (8-10 credits)	2 Science courses (8-10 credits)		2 of 2 Exploring Knowledge: Scientific Perspectives courses & 2 of 3 courses required by major in BI 211,212, 213 sequence
Math: MTH 111¹ ¹ Students who test out of MTH 111 may substitute an elective	4-5	Graduation requirement - 1 College level mathematics course (minimum of 3 credits.) ¹ An elective is not needed for EOU. Students will complete this with math 241 or 251. Math 111/112 are prereqs for physics.	1 Science/ Mathematics course; mathematics requirement met (4-5 credits)		<u>BA</u> 1 Science or Math course (4-5 credits)	<u>BS</u> 1 Math or Statistics course (4-5 credits)	1 of 1 Strand D – Quantitative Reasoning course (4-5 credits)	<u>BA</u> 1 math course (4-5 credits)	<u>BS</u> 1 math course (4-5 credits)	1 of 1 Foundations: Math course

1 course must also satisfy AAOT Cultural Literacy Requirement	27-35	N/A	Meets Intercultural Studies recommendation		N/A	N/A	Counts as 1 of 2 required Multicultural courses (6-8 credits)	N/A
Major and Elective Courses	CC Credits	EOU	OIT	OSU	PSU	SOU	UO	WOU
WR 122 or WR 227	3-4	Meets University Writing Requirement (4)	Meets general education requirement (4)	Meets Bacc Core Writing II requirement (3)	Meets gen ed requirement (4)	Meets University Studies requirement for 1 Strand B – Thinking course (3-4)	WR 122 Meets gen ed requirement; WR 227 transfers as elective (4)	1 of 2 Foundations: Writing courses (4)
MTH 112¹ ¹ Students who test out of MTH 112 may substitute an elective	4-5	Elective credits* (4-5) * Not a requirement for the major ¹ An elective is not needed for EOU. Math 111/112 are prereqs for physics.	Required for major (4-5)	Elective credits* (4-5) * Prereq for courses required major courses: MTH 251, 252, ST 351, ST 352, etc.	Elective credits*† (4-5) * Prereq for courses required by major. MTH 251, 252, PH 201 [†] As of Fall '19 Mth 112 only needed for students taking Calc vs. Stats.	Elective credits* (4-5) * Prereq for required courses: MTH 251	Elective credits* (4-5) * Prereq for MATH 246 & 251 (major requirement)	Elective credits* (4-5) * Prerequisite for most calculus and PHYS (non-calc) courses
Third course in the 3-course Principles of Biology sequence	4-5	[BIO 213] 1 of 3 courses required by major in Biol 211, 212, 213 sequence (5)	1 of 3 courses required by major in Bio 211,212,213 sequence (4)	1 or 3 courses required by major in BI 21x sequence (4)	1 of 3 courses required by major in BI 211, 212, 213 sequence (5)	1 of 3 courses required for major in BI 211, 212 & 213 sequence (5) & 1 of 3 Strand G – Science courses (5)	1 of 3 courses required for major in BI 211, 212 & 213 sequence (4)	1 of 3 courses required by major in BI 211,212, 213 sequence (5)
3-course General Chemistry sequence (with lab)	12-18	3 of 3 courses required by major in CHEM 204, 205, 206 sequence (15)	3 of 3 courses required by major in CHE 221, 222, 223 sequence (15)	3 of 3 courses required by major in CH 23x/26x sequence (15)	3 of 3 courses required by major in CH 221, 222, 223 sequence (15)	3 of 3 courses required by major in CH 221, 222 & 223 sequence (15)	3 of 3 courses required by major in CH 221, 222 & 223 sequence (18)	3 of 3 courses required by major in CH 221, 222, 223 sequence (15)
Choose 2 sequences ● 3-course General Physics (non-calc) ● MTH 251 & 252 ¹² ● 3-course Organic Chemistry sequence ³⁴ ¹ Students transferring to PSU may substitute STAT 243 & 244 for MTH 251 & 252 ² Students transferring to EOU are required to take	20-33	Math: - Math 251 recommended, meets major requirement for MTH 241 (4) - Math 252 transfers as lower division elective (4) Physics: -201 recommended, meets major requirement (5)	Math: Meets major requirements for MTH 251 & 252 (8) Physics: Meets major requirement for 3-course Physics sequence (12) Organic Chemistry:	Math: Meets major requirements for MTH 251 & 252 (8) Physics: Meets major requirement (choice between 3-course Physics or Computer Science tracks) (15) Organic Chemistry:	Math: Meets major requirement (Students may substitute STAT 243 & 244 for MTH 251 & 252) Physics: - 1 course meets major requirement for PH 201 (5) - 2 courses count toward major requirement for 12 credits of additional science (10) Organic Chemistry:	Math: Meets major requirements for MTH 251 & 252 (8) Physics: Meets major requirement for 3-course Physics sequence (15) Organic Chemistry: - 1 course meets major requirement for CH 331 (4)	Math: Meets major requirements for MTH 251 & 252 (8) Physics: Meets major requirement for 3-course Physics sequence (12) Organic Chemistry: - <u>With ACS score</u> , 2 courses meet major	Math: Meets major requirements for MTH 251 & 252 (8) Physics: Meets major requirement for 3-course Physics sequence (12) Organic Chemistry: Meets major requirement for 3-course organic

<p>MATH 241 (Survey of Calculus) instead of MATH 251 and 252. MATH 251 may serve as a substitute for MATH 241. They may also take MTH 243 instead of MTH 252.</p> <p>³ Students considering pre-medical, pre-dental, and pre-pharmacy programs should consider Organic Chemistry sequence.</p> <p>⁴Organic Chemistry sequence strongly recommended for all transfers to OSU.</p>		<p>- 202 -203 transfer as lower division electives (10) unless students are pursuing pre-health profession</p> <p>Organic Chemistry: Transfers as lower division electives (12-18)</p> <p>*Organic Chemistry with the standardized ACS O'Chem exam and scores at or above 50th percentile will meet the O'Chem req. at EOU (OUS 1999 agreement).</p>	<p>- With ACS score, meets major requirement for 3-course organic chemistry sequence (12); does not count toward upper division credit requirement</p> <p>- Without ACS score, transfers as lower division electives (12-18)</p>	<p>Meets major requirement for 3-course organic chemistry sequence (12)</p>	<p>- 1 course meets major requirement for CH 331 or 334 (4)</p> <p>- 2 courses count toward major requirement for 12 credits of additional science (8)</p>	<p>- 2 courses transfer as lower division electives (8)</p>	<p>requirement for CH 331 & 335/336 (8); 1 course transfers as lower division elective (4)</p> <p>- Without ACS score, all courses transfer as lower division electives (12)</p>	<p>chemistry sequence (12); does not count toward upper division credit requirement</p>
<p>Additional electives to reach 90 credits</p>	<p>0-20</p>	<p>Will apply to gen ed or major requirements, or as electives.</p> <p>Recommended:</p> <ul style="list-style-type: none"> ● MTH 243 ● Pick a 3rd sequence from physics/math/chemistry options listed above 	<p>Will apply to gen ed or major requirements, or as electives.</p> <p>Recommended:</p> <ul style="list-style-type: none"> ● 4-6 credits social science ● 1-3 credits humanities ● 2 credits lower division health biology 	<p>Will apply to gen ed or major requirements, or as electives.</p> <p>Recommended:</p> <ul style="list-style-type: none"> ● COMM 111 (3) ● 3 credits Fitness (3) ● 1 Difference, Power and Discrimination course (3-4) ● Pick a 3rd sequence from physics, math, or chemistry series listed above 	<p>Will apply to gen ed or major requirements, or as electives.</p> <p>Recommended:</p> <ul style="list-style-type: none"> ● MTH 243 (if not taken in MTM and transferring to some pre-professional programs) ● Pick a 3rd sequence from physics, math, or chemistry series listed above 	<p>Will apply to gen ed or major requirements, or as electives.</p> <p>Recommended:</p> <ul style="list-style-type: none"> ● MTH 243 ● Pick a 3rd sequence from physics, math, or chemistry series listed above 	<p>Will apply to gen ed or major requirements, or as electives.</p> <p>Recommended:</p> <ul style="list-style-type: none"> ● WR 122 ● Pick a 3rd sequence from physics, math, or chemistry series listed above 	<p>Will apply to gen ed or major requirements, or as electives.</p> <p>Recommended:</p> <ul style="list-style-type: none"> ● WR 122 ● Pick a 3rd sequence from physics, math, or chemistry series listed above
<p>Major Transfer Map Credit Total</p>	<p>90-97</p>	<p>90-97</p>	<p>90-97</p>	<p>90-97</p>	<p>90-97</p>	<p>90-97</p>	<p>90-97</p>	<p>90-97</p>
<p>Remaining Degree Requirements</p>		<p>EOU</p>	<p>OIT</p>	<p>OSU</p>	<p>PSU</p>	<p>SOU</p>	<p>UO</p>	<p>WOU</p>
<p>General Education</p>		<p>1 course that meets Difference, Power and Discrimination (DPD) requirement (4)</p>	<p>SPE 321 (3)</p>	<p>COMM 111 (3)</p>	<p>Junior Cluster (Univ. Studies) (12)</p>	<p>1 of 1 course in Strand C – Information Literacy (4)</p>	<p>7-9 credits of Arts & Letters</p>	<p>3-4 credits of Foundations: Communication and Language (3-4)</p>

		WRI 122 or 227 (3)	Fitness (3 credits)	Sr. Capstone (Univ. Studies) (6)	1 of 3 courses in Strand E – Humanities (4)	7-9 credits of Social Science	3-4 credits of Foundations: Critical Thinking (3-4)
		WRI 327 (3)	Difference Power and Discrimination (3-4)		1 of 3 courses in Strand F – Social Science (4)	1 of 2 Multicultural Requirement courses (3-4)	4 credits of Foundations: Health Promotion (4)
		4-6 credits social science (4-6)	Contemporary Global Issues (3-4)* * Upper division		1 of 1 course in Strand H – Science, Technology and Society (3-4)* * Upper division		3-4 credits of Integrating Knowledge: Science, Technology, Society (3-4)* * Upper division
		1-3 credits humanities (1-3)	Science Technology and Society (3-4 credits and some overlap BI and Society in major)* * Upper division		1 of 1 course in Strand I – Citizenship and Social Responsibility (3-4)* * Upper division		3-4 credits of Integrating Knowledge: Citizenship, Social Responsibility, Global Awareness (3-4)* * Upper division
					1 of 1 course in Strand J – Diversity and Global Awareness (3-4)* * Upper division		*** <i>First Year seminars requirements is waived student can apply 8 credits of electives</i>
Gen Ed Credits	16-22	14-18	15-18	18	21-24	17-22	16-20
Major Requirements	PHYS 201* 202, 203*(15) can be taken for pre-health professions * If not taken in MTM	CHE 331, 332 & 333 (12) OR PHY 201, 202, and 203 (12) OR MTH 251 & 252 (8)	CHE 331, 332 & 337 (12) OR PH 201, 202, and 203 (15) OR 3-course Computer Science sequence (14-16) OR MTH 251 & 252 (8)	CH 331 or 334 (4) OR PH 201 or 214 (5) OR MTH 251 & 252 (8) OR MTH 243 & 244 (8)	PH 201, 202, & 203* (15) * If not taken in MTM	OCHEM 331 and 335 (8) OR PH 201, 202, and 203 (15) OR MTH 251 & 252 (8)	CH 334, 335, 336 (12) OR PH 201, 202, & 203 (12) OR MTH 251 & 252 (8)
	MTH 241 or 251* (4) * If not taken in MTM	Bio 200 (2)	BI 197 or BI 198 professional development course (1)	Area A Course: (Choose ONE) BI 334 Molecular (4) BI 336 Cell (5) BI 341 Genetics (4)	MTH 251 & 252* (8) * If not taken in MTM	BI 214 (4)	BI 314, 315 & 316 (12)
	Core requirements: ● Biol 341/342 (8) ● Biol 357 (4) ● Biol 358 (1) ● Biol 490 (3)	Bio 331, 332 & 333 (15)	BI 298 Professional Development for Biologist II (1 credit)	Area C Course: (Choose ONE/ 4 cr) BI 357 Ecology 4 cr BI 358 Evolution 4 cr	Bi 314 / 331 Physiology (5) Bi 340 Genetics (4) Bi 342 Cell Bio (5) Bi 340 Ecology (4) Bi 348 Evolution (4)	1 course from cell/molecular group (4)	BI 331 (4)
	STAT 352 (4)	Bio 109, 209 & 409 (5)	BI 311 Genetics (4)	Area B Course: (Choose ONE/ 4-6cr) BI 320 Intro Physiologoy 4 cr BI 330 Intro Plant Bio 4 cr	CHOOSE ONE OPTION CH Option A: CH 331 OCHEM (4)* CH 350 Biochem (4)	1 course from systems/organisms group (4)	BI 343 biostats (4)

			BI 386 Invert Zoology 6 cr BI 387 Vert Zoology 6 cr	BI 346 Biogeochem (4) * If not taken in MTM CH Option B: CH 334, 337, 335 (8)		
CHEM 334 and 335 (8)	Bio 345 (5)	BI 314 Cell and Molecular Biology (4 credits)	Lab/Field Requirement- Choose two courses with major lab/field componen (3-12)		1 course from ecology/evolution group (4)	BI 357 (4)
CHOOSE ONE OPTION <u>Option A – Ecological concentration:</u> ● Chem 336 (4) ● Biol 313 (3) ● Biol 334 (5) ● Biol 320 (3) ● Biol 415 (3) <u>Option B - Molecular Biology Concentration:</u> ● Chem 450 (4) ● Biol 323 (5) ● Biol 345 (3) ● Biol 431 (5) ● Biol 445 (3) ● Biol 432(5) ● Biol 462 (3)	Bio 346 (3)	BI 370 Ecology (3 credits)	Choose 12 credits of coursework from BI 412-499.		2 300 or 400-level courses with lab/field component (8-11)	CHOOSE ONE OPTION <u>Option A: (15)</u> BI 334, 335, 336 Advanced Human Anatomy & Physiology (12) CH 451 Biochemistry (3) <u>Option B: (16)</u> BI 324 Comparative Vertebrate Anatomy (5) BI 434 Comparative Animal Physiology (4) Choose one: ● BI 326 Developmental Biology (4) ● BI 432 Immunology (4) ● BI 437 Neurobiology (4) ● BI 475 Molecular Biology (4) CH 451 Biochemistry (3) <u>Option C: (16)</u> BI 334, 335, 335 Advanced Human Anatomy & Physiology (12) CH 451 Biochemistry (3) Choose one (4) ● BI 326 Developmental Biology (4) ● BI 432 Immunology (4) ● BI 437 Neurobiology (4) BI 475 Molecular Biology (4)
	CHE 450, 451 (8)	BB 450, 451 Biochemistry (7)	2 credits 200+ level from CH, CS, ESM, G, or PH (2)		12 creds from BI 420-499 (12)	
		MB 302, 303 Microbiology & Lab (5)			1 MAPS course (4)	
		BI 445 Evolution (3)				
		ST 351, 352 Statistics (8)				

		2 credits lower div health bio elective (2)	Biology and Society (0) - all count as a Synthesis Course for the General Education requirements	Upper division BIO Electives to reach requirements for 44 upper division credits and 60 total BIO credits.	5 upper division Bio elective courses (18-25)* * 1 course must be a capstone elective	Upper division BI electives needed to reach 44 upper division credits (?)	
		21 credits upper division health bio electives (21)	Organismal Biology elective (4-5 credits)				
			Physiology elective (3-5)				
			Writing Intensive Course (3)				
			Additional Upper Division Elective (6-8, will be 3-5)				
Major Requirements	Ecological 43-69 Molecular Bio 57-73	69	60-73	33-49	48-74	48-68	47-52
Remaining Gen Ed + Major Requirements	58-93	79-87	75 - 91	51-67	69 - 98	65-90	63-72
Additional Electives	0-32	3-11	0-15	23-39* * Including upper division BIO electives	0-21	0-25	18-27

Appendix C. Advanced Placement and International Baccalaureate Worksheet for MTM-Biology

Present July 21, 2020: Kia Sorensen, Erin Weeks-Earp, Brittany Miles; Lloyd Paratt, Laura Mart, Christina Andrews, Sarah Fuller, Tory Blackwell, Leah Tuor, Erin Baumgartner, Nichole Warwick, Brock McLeod

Present October 15, 2020: Nichole Warwick, Lori Kayes, Sarah Fuller, Leah Tuor, Wally Shriner, Brock McLeod, Shauna McNulty, Erin Baumgartner, Linda Ferguson-Kolmes, Jen Schramm (Lloyd Parratt, David Oline, and Laura Mahrt reviewed later by email)

The Biology Major Transfer Map (MTM) Workgroup met on July 21, 2020 and October 15, 2020 to determine whether Advanced Placement (AP) and International Baccalaureate (IB) articulations contained an acceptable amount of variance for relevant AP and IB subjects to be included in the Biology Major Transfer Map Memorandum of Understanding.

Advanced Placement:

The group identified AP/IB subjects that are relevant to the Biology major. The subjects are listed in the first column in Table 1.

Table 1. Crosswalk of AP articulated Higher Ed Courses and MTM Requirements

AP Exam Name	Score	Credit Range	Course Articulations	Biology MTM Major Requirements	Acceptable level of alignment	Not an acceptable level of alignment w/ recommendation to AP/IB workgroup for MTM acceptable variance
AP Statistics	3-5	4-5	MTH 243 (4); Math 105 (4); MTH 243 (4); MTH 243 (4); MTH 200T (4); MTH 243 (4); STAT LD Transfer (4); MTH 243 (4); MTH 243 (4); LDT Credit (4)MTH 243 (4); MTH Elective (4) ST elective (4); MATH 243 (4); MTH Elective (4); STAT 243 (4); MTH 243 (4); MTH LDT (will meet GEQR) (4); MTH 243 (4); STAT 243 (5); Elective (4); MTH 243 (4); Mathematics (1 course) (4)	MTH 111, and MTH 112 or higher level elective	<input checked="" type="checkbox"/>	<input type="checkbox"/>
AP Biology	3	4-15	BI 101, 102, 103 (12) BI 101, BI DS Science Lab Credits (4) BI LAB (8) BI 101, 102 (8) BI 211 (5) BI 211 (5) BIOL 101 (4) BI 101, 102 (8) BI 101, 1XX (8) BI Elective (8) BI101, 102 (8) BI 101, 102 (8) BI 101, 102, 103 (12) BIO 101, 102 (8) BI 101, 102 (8) BI LD (lab science) (8) BI 101, 102, 103 (12) BI 101, 102 (8) BI 101,		<input type="checkbox"/>	A score of 3 will not count towards a BIOLOGY MTM. Recommendation: that a score of 3 count for "non-majors"

			102, 103 (12) BI 101, 102, 103 (12) Elective (8) BI 101, 102 (8) Biology (2 courses) (8) Coming soon			
AP Biology	4-5	4-15	BI 101, 102, 103 (12) BI 101, 102, 103 (12) BI 101, 102, 103 (12) LD Science 211+BI courses (12) BI 211, 212 (10) BI 211, 212, 213 (15) BIOL 101, 102 (8) BI 101, 102, 103 (12) BI, BOT 211, 213 (8) BI 211, 212, 213 (12) BI 211, 212, 213 (12) BI 211, 212, 213 (15) BI 221, 222, 223 (12) BIO 101, 102 (8) BI 211, 212, 213 (15) BI 211, 212, 213 and 3 credits BI LD (15) BI 211, 212, 213 (12) BI 101, 102, 103 (12) BI 101, 102, 103 (12) BI 101, 102, 103 (12) BIOL 101, 102, 103 (12) BI 211, 212, 213 (15) BI 211, Biology (2 courses) (12) BI 101, 102, 103 (12) 8 to 15 5 BI 101, 102, 103 (12) BI 101, 102, 103 (12) BI 101, 102, 103 (12) LD Science 211+BI courses (12) BI 211, 212 (10) BI 211, 212, 213 (15) BIOL 101, 102, 103 (12) BI 101, 102, 103 (12) BI, BOT 211, 213 (8) BI 211, 212, 213 (12) BI 211, 212, 213 (12) BI 211, 212, 213 (15) BI 221, 222, 223 (12) BIO 211, 212, 213 (12) BI 211, 212, 213 (15) BI 211, 212, 213 and 3 credits BI LD (15) BI 211, 212, 213 (12) BI 101, 102, 103 (12) BI 101, 102, 103 (12) BIOL 101, 102, 103 (12) BI 211, 212, 213 (15) BI 211, Biology (2 courses) (12) BI 101, 102, 103 (12)	BI 211, 212, and 213 or BI 221, 222, and 223 or BI 21X, 22X, and 22X (depending on institution)	<input type="checkbox"/>	To count toward BIO MTM AP Biology would need to articulate as the 200 level BIO sequence need BI 211, 212, and 213 or BI 221, 222, and 223 or BI 21X, 22X, and 22X (depending on institution) Ideally they would transfer with the same number of credits but this is not a deal breaker
AP Calculus AB	3	4-10	MTH 251 (4) MTH 251 MTH 251 (5) MTH 251 (5) MTH 251 (4) MTH 251 (5) MATH 251 (4) MTH 251 (4) MTH 251 (5) MTH 251 (4) MTH 251 (4) MATH 251 (4) MTH 251 (4) MTH 251 (4) MTH 251 (5) MTH 251 (4) MTH 251 (4) MTH 251 (5) MATH 251,252 (10) MTH 251 (5) Mathematics (1 course) (4) MTH 251 (4)	251	<input type="checkbox"/>	Needs to be aligned to 251
AP Calculus AB	4-5	4-15	4 MTH 251, 252, 253 (12) MTH 251, 252, 253 MTH 251, 252, 253 (15) MTH 251, 252, 253 (15) MTH 251, 252, 253 (12) MTH 251, 252, 253 (15) MATH 251, 252 (8) MTH 251, 252, 253 (12) MTH 251, 252, 253 (15) MTH 251, MTH 252, MTH 253 (14) MTH 251, MTH 252, MTH 253 (14) MTH 251, 252, 253 (14) MTH 251, 252, 253 (12) MATH 251, 252, Math elective (12) MTH 251, 252, 253 (14) MTH 251, 252, 253 (12) MTH 251, 252, 253 (12) MTH 251, 252, 253 (12) MTH 251,252 (10) MATH 251, 252, 253 (15) MTH 251,252,253 (15) MATH 251, 252, 253 (12) MTH 251, 252, 253 (10) 10 to 15 5	251, 252	<input type="checkbox"/>	To count toward BIO MTM AP Calculus AB would need to articulate as the 200 level MTH XXX and MTH XXX (depending on institution) Ideally they would transfer with the same number of credits but this is not a deal breaker

AP Chemistry	4	8-15	CH 104, 105, 106 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CHEM 204, 205 (8) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH 231, 232, 233, 261, 262, 263 (15) CHE 221, 222, 223 (15) CH 221, 222, 223 (15) CH 221, 222, 223 227, 228, 229 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (12) CHEM 221, 222, 223 (15) CH 104, 105, 106 (15) CHEM 104, 105, 106 (12) CH 221, 222, 223 (15) CH 221, 222, 223 (12) CH 104, 105, 106 (12)			4 or 5 would be 2XX level sequence, counting in MTM, (needs to be 3 classes & EOU only has 2, needs 206)
AP Chemistry	5	12-15	CH 104, 105, 106 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CHEM 204, 205, 206 (12) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH 231, 232, 233 261, 262, 263 (15) CHE 221, 222, 223 (15) CH 221, 222, 223 227, 228, 229 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (12) CHEM 221, 222, 223 (15) CH 104, 105, 106 (15) CHEM 104, 105, 106 (12) CH 221, 222, 223 (15) CH 221, 222, 223 (12) CH 221, 222, 223 (15)			4 or 5 would be 2XX level sequence (3 courses), counting in MTM, EOU only has 2 need 206
AP Physics I	3	3-12	Coming soon GS 104 (4) PH 1XX (5) PH-150 (3) PH 100T (4) PHY 201 (4) PHYS 201 (4) PHY 201 (5) PH 1XX (4) LDT Credit (4) GS 104 (4) PHY 101 (4) PH 106 (4) PHY 201 (4) PHY 101 (4) PH LD (lab science credit) (5) GS 104 (4) PH LDT Non-lab science (4) PH 201 (5) PHY 101, 102, 103 (12) Elective (4) Science Elective (4) Physics (1 course) (4) Coming soon			Needs to be aligned under 2xx level (under 2xx not applicable to MTM)
AP Physics I	4-5	3-12	Coming soon PH 201 (4) PH 201 (5) PH 201 (5) PH 201 (5) PHY 201, 202, 203 (12) PHYS 201, 202 (8) PHY 201 (5) PH 201 (5) PH 201 (5) PH 201 (5) PHY 201 (4) PH 201 (5) PHY 201 (4) PHY 201 (4) PH 201, 214 (5) PH 201 (5) PH 201(3),202(3)and PH 199(2)- 8 cr total PH 201 (5) PHY 101, 102, 103 (12) Elective (8) PHY 201 (5) PHYS 201, 202 (8) PH 201, 202 (8)			Needs to be aligned around 2XX, group is unclear how the content is distributed and is not comfortable designating which courses but wants consistency
AP Physics II	3	3-5	Coming soon GS 104 (4) PH 1XX (5) PH-150 (3) PH 100T (4) PHY 201 (4) PHYS LD Transfer (4) PHY202 (5) PH 1XX (4) LDT Credit (4) PHLAB (4) PHY 103 (4) PH 106			Needs to be aligned under 2xx level (under

			(4) PHY 201 (4) PHY 103 (4) PH LD (lab science credit) (5) GS 104 (4) PH LDT Non-lab science (4) PH 202 (5) PHY 201 (5) Elective (4) Science Elective (4) Physics (1 course) (4) Coming soon			2xx not applicable to MTM)
AP Physics II	4-5	3-12	Coming soon PH 202 (4) PH 202, 203 (10) PH 202 (5) PH 203 (5) PHY 201, 202, 203 (12) PHYS LD Transfer (4) PHY 202 (5) PH 203 (5) PH 203 (5) PH 202, 203 (10) PHY 203 (4) PH 203 (5) PHY 201, 202, 203 (12) PHY 203 (4) PH 202, 2015 (5) PH 202 (5) PH 203 (3)and PH 199(1) total 4 cr PH 202 (5) PHY 201 (5) Elective (8) PHY 203 (5) PHYS 203 (4) PH 203, PH Course (8)			Needs to be aligned around 2XX, group is unclear how the content is distributed and is not comfortable designating which courses but wants consistency
AP Electricity and Magnetism	3	3-5	PH 201 (5) GS 104 (4) PH 1XX (5) PH-150 (3) PH 200T (4) GS 1XX (5) PHYS LD Trans (4) PH 202 (5) PH 1XX (4) LDT Credit (4) PHLAB (4) PHY 103 (4) PH 106 (4) PHY 202 (4) PHY 103 (4) PH LD (lab science credit) (4) PH 202 (5) PH LDT Non-lab science (4) PH 213 (5) PHY 299 (Sci elective) (4) Elective (4) PH 203 (5) Physics (1 course) (4) Coming soon			Needs greater alignment, if under two hundred level does not apply to MTM
AP Electricity and Magnetism	4-5	4-5	PHY 201 (5) PH 212 (4) PH 203 (5) PH 212 (4) PH 213 (4) GS 2XX (5) PHYS LD Trans (4) PH 212 (5) PH 213 (5) PH 213 (5) PH 213 (5) PH 213 (5) PH 213 (4) PHY 222 (4) PH 213 (5) PH 222, 215 (4) PH 212 (5) PH 223 Non-lab science (4) PH 213 (5) PHY 299 (Sci elective) (4) Elective (4) PH 213 (5) PHYS 253 (4) PH 213 (4)			Needs to be aligned and consistent
AP Mechanics	3		PH 201 (5) GS 104 (4) PH 1XX (5) PH-150 (3) PH 200T (4) GS 1XX (5) PHYS LD Trans (4) PH 201 (5) PH 1XX (4) LDT Credit (4) PHLAB (4) PHY 101 (4) PH 106 (4) PHY 201 (4) PHY 101 (4) PH LD (lab science credit) (4) PH 201 (5) PH LDT Non-lab science (4) PH 211 (5) PHY 299 (Sci elective) (4) Elective (4) PH 203 (5) Physics (1 course) (4) Coming soon			Needs greater alignment, to be consistent with others seems like it should be aligned under 2xx, if under 200 level does not apply to MTM
	4-5		PHY 201 (5) PH 212 (4) PH 201 (5) PH 211 (4) PH 211 (4) GS 2XX (5) PHYS LD Trans (4) PH 211 (5) PH 211 (5) PH 211 (5) PH 211 (5) PHY 211 (5) PH 211 (4) PHY 221 (4) PHY 211 (5) PH 221, 214 (4) PH 212 (5) PH 221 Non-lab science (4) PH 211 (5) PHY 299 (Sci elective) (4) Elective (4) PH 213 (5) PHYS 251 (4) PH 211 (4)			Needs to be aligned and consistent

IB Alignment:

The group identified IB subjects that are relevant to the Biology major. The subjects are listed in the first column in Table 2.

Table 2. Crosswalk of IB articulated Higher Ed Courses and MTM Requirements

IB course name	Score	Credit Range	Course Articulations	Biology MTM Major Requirements	Acceptable Level of Alignment	Not An Acceptable Level of Alignment
IB Biology	Standard, 4	3-5	TBA BIO LDT (3) TBA BI101 & 102 (8) BI 211 (4) TBA TBA BIO 101/L, 102/L (5) TBA TBA TBA BI 211 (5) BI 101 (4) TBA BI 211 (5) TBA BI 211 (4) BI LDT (5) BI 201 (4) BI 211 (5) TBA BI 101 (4) Biology (1 course) (4) TBA			Needs alignment, if below 2xx level does not apply to MTM. Needs to be aligned around 100 level
	Standard 5+	12-15	TBA BI 211 (5) BI 101, 102, 103 (4) BI 101 & 102 (8) BI 211 (4) TBA TBA BIO 101/L, 102/L (5) BI 211 (4) BI 211 BI 211 (5) BI 211 (5) BI 221 (4) BIO 101, 102 (8) BI 211 (5) BI LD (4) BI 211 (4) BI 211 (5) BI 201 (4) BI 211 (5) TBA BI 211 (5) Biology (1 course) (4) BI 211 (5)			Needs alignment, if below 2xx does not apply to MTM. Needs to be aligned around 2xx course, recommend first of series
IB Biology	High, 4	3-5	TBA BIO LDT (12) TBA BI 101, 102 & 103 (12) BI 211, 212, 213 (12) TBA TBA BIO 211/L, 212/L, 213/L (12) TBA TBA TBA BI 211, 212, 213 (15) BI 101, 102, 103 (12) TBA BI 211, 212, 213 (15) TBA BI 211, 212, 213 (12) BI LDT (5) BI 201, 202, 203 (12) BI 211, 212, 213 (15) TBA BI 101, 102, 103 (12) BI 211, 212, 213 (12) TBA			Align around 1xx level of Bio series, If not at 2xx level does not apply to MTM
	High, 5+	12-15	TBA BI 211, 212, 213 (15) BI 101, 102, 103 (12) BI 101, 102, 103, 112,120 (12) BI 211, 212, 213 (12) TBA TBA BIO 211/L, 212/L, 213/L (12) BI 211, 212, BOT 213 (12) BI 211, BI 212, BI 213 BI 211, 212, 213 (15) BI 211, 212, 213 (15) BI 211, 212, 213 (12) BIO 211, 212, 213 (12) BI 211, 212, 213 (15) BI LD (12*) BI 211, 212, 213 (12) BI 211, 212, 213 (15) BI 201, 202, 203 (12) BI 211, 212, 213 (15) TBA BI 211, 212, 213 (15) BI 211, 212, 213 (12) BI 211, BI 212, BI 213 (15)			Whole series (3 classes), 2xx level, needs alignment
IB Chemistry	Standard, 4	4-5	TBA CH221 (5) TBA CH 104 (5) CH 231, 261 (5) TBA TBA CHE 104/L (5) TBA CH 221 TBA CH 221 (5) CH 231, 261 (5) TBA CH 221 (5) TBA CHEM 221 (5) CH LDT(5) CHEM 221 (5) CH 221 (5) TBA CH 112 (5) Chemistry (1 course) (4) TBA			Needs alignment, some schools award major credit and some do not. If below 2xx does not count for MTM
IB Chemistry	Standard, 5+	12-15	TBA CH 221 (5) CH 221 (5) CH 221 (5) CH 231, 261 (5) TBA TBA CHE 104/L (5) CH 221 (5) CH 221,			Needs alignment (KCC outlier), If below 2xx

			CH 222 CH 221 (5) CH 221 (5) CH 231, 232, 261, 262 (10) CHE 101, 104 (4) CH 221 (5) CH LD (4) CHEM 221 (5) CH 221, 227 (5) CHEM 221 (5) CH 221 (5) TBA CH 221 (5) Chemistry (1 course) (4) CH 104 (4)			does not count for MTM
IB Chemistry	High, 4	4-5	TBA CH 221, 222 (10) TBA CH 221, CH 222, CH 223 (15) CH 231, 232, 233, 261, 262, 263 (15) TBA TBA CHE 221/L, 222/L, 223/L (15) TBA CH 221, CH 222 TBA CH 221, 222, 223 (15) CH 231, 232, 261, 262, CH LDT (12) TBA CH 221, 222, 223 (15) TBA CHEM 221, 222, 223 (15) CH LDT(5) CHEM 221, 222, 223 (15) CH 221, 222, 223 (15) TBA CH 221, 222, 223 (15) CH 221, 222, 223 (12) TBA			Needs alignment (look at number of terms offered)
IB Chemistry	High, 5+	12-15	TBA CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH 221, CH 222, CH 223 (15) CH 231, 232, 233, 261, 262 263 (15) TBA TBA CHE 221/L, 222/L, 223/L (15) CH 221, 222, 223 (15) CH 221, CH 222, CH 223 CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH 221, 222, 223 (15) CH LD (12) CHEM 221, 222, 223 (15) CH 221, 222, 223+Labs 227/228/229(15) CHEM 221, 222, 223 (15) CH 221, 222, 223 (15) TBA CH 221, 222, 223 (15) CH 221, 222, 223 (12) CH 221, CH 222,			Align around the major series (missing data makes it difficult to see if aligned)
IB Mathematics , Last exam 5/20	Standard, 4		4 TBA MTH 111 (4) TBA MTH 111 (5) MTH 241, MTH LDT (6) TBA TBA MTH 111 (5) TBA MTH 241 TBA MTH 111 (5) MTH 241 (4) TBA MTH 111 (5) MTH LD (4) MTH 111(4) MTH LDT-QR (4) MTH 111 (4) MTH 111 (5) TBA MTH 111 (5) Mathematics (1 course) (4) TBA			Not aligned
IB Mathematics , Last exam 5/20	Standard, 5+		TBA MTH 113 (4) MTH 111 (5) MTH 111 (5) MTH 241, MTH LDT (6) TBA TBA MTH 111 (5) MTH 111 (5) MTH 241 + MTH LDT (6) TBA MTH 111 (5) MTH 241, MTH LDT (6) MASC (4) MTH 111 (5) MTH LD (4) MTH 111(4) MTH LDT-QR (4) MTH 111 (4) MTH 111 (5) TBA MTH 111 (5) Mathematics (1 course) (4) MTH 112 (4)			Not aligned
IB Mathematics , Last exam 5/20	High, 4		TBA MTH 112, 251 (8) TBA MTH 112, 251 (10) MTH 251, MTH LDT (8) TBA TBA MTH 111, 112 (9) TBA MTH 251 + MTH LDT (6) TBA MTH 112, 251 (9) MTH 251, MTH LDT (8) TBA MTH 112, 251 (9) MTH 251, 252, LD (12) MTH 112, 251 (9) MTH LDT-QR (8) MTH 112, 251 (9) MTH 112, 251 (9)			Not aligned

			TBA MTH 251 (5) MATH 251 Mathematics (1 course) (8) TBA			
IB Mathematics , Last exam 5/20	High, 5+		TBA MTH 251, 252 (8) MTH 112, 251 (10) MTH 112, 251 (10) MTH 251, MTH LDT (8) TBA TBA MTH 112,251 (8) MTH 111, 241 (10) MTH 251 + MTH LDT (8) TBA MTH 112, 251 (9) MTH 251, MTH LDT (8) MATH 112, 251 252 MTH 112, 251 (9) MTH 251, 252, LD (12) MTH 112, 251 (9) MTH 112, 251, 252 (12) MTH 112, 251 (9) MTH 112, 251 (9) TBA MTH 251 (5) MATH 251 Mathematics (1 course) (8) MTH 112, MTH 241, MTH 242 (12)			Not aligned, if aligned to 251 and 252 counts for MTM
IB Math, Mathematics: Analysis and Approaches	Standard, 4	4-10	TBA MTH 111, 112 (8) TBA MTH 111, 112 (10) TBA TBA TBA MTH 111, 112 (9) TBA TBA TBA MTH 111, 112 (10) MTH 112 (4) TBA MTH 111, MTH 112 (10) Mth 251(4) (additional MTH LD credits OK if needed) MTH 111 (4) MTH LDT (4) MTH 111, 112 (8) MTH 111, 112 (10) TBA MTH 111, 112 (9) 4 credits in generic MATH (counts toward BS math) TBA			Needs alignment, if aligned around 111 and 112 counts for MTM
IB Math, Mathematics: Analysis and Approaches	Standard, 5+	4-10	TBA MTH 111, 112 (8) TBA MTH 111, 112 (10) TBA TBA TBA MTH 111, 112 (9) TBA MTH 111, MTH 112 TBA MTH 111, 112 (10) MTH 112 (4) TBA MTH 111, MTH 112 (10) Mth 251(4) (additional MTH LD credits OK if needed) MTH 111, 251 (9) MTH LDT (4) MTH 111, 112 (8) MTH 111, 112 (10) TBA MTH 111, 112 (9) 4 credits in generic MATH (counts toward BS math) TBA			Needs alignment, if aligned around 111 and 112 counts for MTM
IB Math, Mathematics: Analysis and Approaches	High, 4	12-14	TBA MTH 112, 243, 251 (12) TBA MTH 112, 243, 251 (14) TBA TBA TBA MTH 111, 112, 251 (13) TBA TBA TBA MTH 112, 243, 251 (14) MTH 251, MTH LDT (12) TBA MTH 112, MTH 243, MTH 251 (14) Mth 251(4) and Mth 252(4) and 4 MTH LD(more MTH LD ok if needed) MTH 111, 112 (8) MTH LDT (8) MTH 112, 243, 251 (12) MTH 112, 243, 251 (14) TBA MTH 251, 252, 253 (13) 4 credits in generic MATH (counts toward BS math) and MATH 251 TBA			Not aligned, if contains 111, 112, & 243, 251, or 252 counts for MTM
IB Math, Mathematics: Analysis and Approaches	High 5+	12-14	TBA MTH 112, 243, 251 (12) TBA MTH 112, 243, 251 (14) TBA TBA TBA MTH 111, 112, 251 (13) TBA MTH 112, MTH 243, MTH 251 TBA MTH 112, 243, 251 (14) MTH 251, MTH LDT (12) TBA MTH 112, MTH 243, MTH 251 (14) Mth 251(4) and Mth 252(4) and 4 MTH LD(more MTH LD ok if needed) MTH 111, 112, 243, 251 (17) MTH LDT (8) MTH 112,			Not aligned, if contains 111, 112, & 243, 251, or 252 counts for MTM

			243, 251 (12) MTH 112, 243, 251 (14) TBA MTH 251, 252, 253 (13) 4 credits in generic MATH (counts toward BS math) and MATH 251 TBA			
IB Math, Mathematics: Analysis and Approaches (2021)	Standard 4 and 5		4 TBA MTH 105,111 (8) TBA MTH 105,111 (9) TBA TBA TBA MTH 105, 111 (9) TBA TBA TBA MTH 105,111 (9) MTH 105 (4) TBA MTH 105, MTH 111 (9) Mth 105(4) (additional MTH LD credits OK if needed) MTH105 (4) MTH LDT+QR (4) MTH 105,111 (8) MTH 105,111 (9) TBA MTH 105, 111 (9) 4 credits in generic MATH (counts toward BS math) TBA			Needs alignment.
IB Math, Mathematics: Analysis and Approaches (2021)	High levels 4, 5		TBA MTH 105, 111, 243 (12) TBA MTH 105, 111, 243 (13) TBA TBA TBA MTH 105, 111, 243 (13) TBA TBA TBA MTH 105, 111, 243 (14) MTH 111, 112 and ST 201 (12) TBA MTH 105, MTH 111, MTH 243 (14) Mth 111(4) & Mth 112(4) & Stat 243(4) (additional MTH LD credits OK if MTH 111, 243 (8) MTH LDT+QR (8) MTH 105, 111, 243 (12) MTH 105, 111, 243 (14) TBA MTH 105, 111, 243 (14) 4 credits in generic MATH (counts toward BS math) and MATH 251 TBA			Needs alignment, applicable if 112 and/or 243
IB Physics	Standard, 4	3-4	4 TBA GS104 (4) TBA PH 201 (5) PH 201 (5) TBA TBA PHY 101/L (4) TBA TR LDT (4) TBA PHY 201 (4) PH 106 (4) TBA PHY 201 (4) PH LD (4) PH 201 (5) PH LDT(5) PH LD (5) PHY 201 (4) TBA PH LDT (4) PHYS 101 (4) TBA			Not aligned, if 2xx applied to MTM
IB Physics	Standard, 5+	3-4	TBA PH 201 (5) PH 201 (5) PH 201 (5) PH 201 (5) TBA TBA PHY 101/L (4) PH 201 (5) PH 201 PH 201 (5) PHY 201 (4) PH 201(5) MASC (4) PHY 201 (4) PH LD (4) PH 201 (5) PH LDT (5) PH LD (5) PHY 201 (4) TBA PH 201 (5) PHYS 101 (4) PH 201 (4)			Not aligned, if 2xx applied to MTM
IB Physics	High, 4	12-14	TBA GS104 (4) TBA PH 201, 202, 203 (15) PH 201, 202, 203 (15) TBA TBA PHY 101/L, 102/L, 103/L (12) TBA TR LDT (4) TBA PHY 201, 202, 203 (12) PH 106, PH LDT (12) TBA PHY 201, 202, 203 (12) PH LD (4) PH 201, 202, 203 (15) PH LDT(5) PH 201, 202, 203 (15) PHY 201, 202, 203 (12) TBA PH 201, 202, 203 (15) PHYS 201, 202, 203 (12) TBA			Not aligned, if 2xx applied to MTM
IB Physics	High, 5+	12-14	TBA PH 201, 202, 203 (15) PH 201, 202, 203 (15) PH 201, 202, 203 (15) TBA TBA PHY 201/L, 202/L, 203/L (12) PH 201, 202, 203 (15) PH 201, PH 202, PH 203 PH 201, 202, 203 (15) PHY 201, 202, 203			Not aligned, if 2xx applied to MTM (need more information about TBAs to determine if aligned)

			(12) PH 201, 202, 203 (15) PHY 201, 202, 203 (12) PHY 201, 202, 203 (12) PH 201, 202, 203, 214/215/216 (15) PH 201, 202, 203 (15) PH LDT (15) PH 201, 202, 203 (15) PHY 201, 202, 203 (12) TBA PH 201, 202, 203 (15) PHYS 201, 202, 203 (12) PH 201, PH 202,			