

MITRANSFER PATHWAYS

ARTICULATION AGREEMENT

BIOLOGY

TO: MiTransfer Pathway Biology Participating Institutions

FROM: Michigan Community College Association, Michigan Association of State Universities, Michigan Independent Colleges and Universities

SUBJECT: MiTransfer Join/Modify Summary

The MiTransfer Pathways agreement, signed on December 9, 2019 provides for institutions to modify worksheets and equivalencies or join the MiTransfer Pathways agreement. The MCCA, MASU, and MICU worked with institutions to make the following adjustments to the Biology Pathway:

## BIOLOGY

### FALL 2020 JOIN/MODIFY

INSTITUTION	JOINING/ MODIFYING	APPENDIX A	APPENDIX B	APPENDIX C	APPENDIX D
		COMMUNITY COLLEGE WORKSHEET CHANGE	UNIVERSITY WORKSHEET CHANGE	EQUIVALENCY CHANGE	EXCEPTION CHANGE
Ferris State University	Joining		X	X	X
Kellogg Community College	Modifying	X			
Michigan Technological University	Modifying		X		
Mid Michigan College	Modifying	X			
North Central Michigan College	Modifying	X			
Saginaw Valley State University	Joining		X	X	X
University of Michigan-Dearborn	Modifying		X		

## BIOLOGY

### SPRING 2021 JOIN/MODIFY

INSTITUTION	JOINING/ MODIFYING	APPENDIX A	APPENDIX B	APPENDIX C	APPENDIX D
		COMMUNITY COLLEGE WORKSHEET CHANGE	UNIVERSITY WORKSHEET CHANGE	EQUIVALENCY CHANGE	EXCEPTION CHANGE
Andrews University	Joining		X	X	
Concordia University-Ann Arbor	Joining		X	X	
Muskegon Community College	Modifying	X			

## BIOLOGY

### FALL 2021 JOIN/MODIFY

INSTITUTION	JOINING/ MODIFYING	APPENDIX A	APPENDIX B	APPENDIX C	APPENDIX D
		COMMUNITY COLLEGE WORKSHEET CHANGE	UNIVERSITY WORKSHEET CHANGE	EQUIVALENCY CHANGE	EXCEPTION CHANGE
Cornerstone University	Joining		X	X	X
Kellogg Community College	Modifying	X			
Macomb Community College	Modifying	X			
North Central Michigan College	Modifying	X			
Siena Heights University	Joining		X	X	X

## BIOLOGY

### SPRING 2022 JOIN/MODIFY

INSTITUTION	JOINING/ MODIFYING	APPENDIX A	APPENDIX B	APPENDIX C	APPENDIX D
		COMMUNITY COLLEGE WORKSHEET CHANGE	UNIVERSITY WORKSHEET CHANGE	EQUIVALENCY CHANGE	EXCEPTION CHANGE
Jackson College	Modifying	X			

## BIOLOGY

### FALL 2022 JOIN/MODIFY

INSTITUTION	JOINING/ MODIFYING	APPENDIX A	APPENDIX B	APPENDIX C	APPENDIX D
		COMMUNITY COLLEGE WORKSHEET CHANGE	UNIVERSITY WORKSHEET CHANGE	EQUIVALENCY CHANGE	EXCEPTION CHANGE
Kellogg Community College	Modifying	X			
Kirtland Community College	Modifying	X			

# BIOLOGY

## SPRING 2023 JOIN/MODIFY

<b>INSTITUTION</b>	<b>JOINING/ MODIFYING</b>	<b>APPENDIX A COMMUNITY COLLEGE WORKSHEET CHANGE</b>	<b>APPENDIX B UNIVERSITY WORKSHEET CHANGE</b>	<b>APPENDIX C EQUIVALENCY CHANGE</b>	<b>APPENDIX D EXCEPTION CHANGE</b>
Adrian College	Joining		X	X	X
Albion College	Joining		X	X	X
Alma College	Joining		X	X	
Olivet College	Joining		X	X	
University of Detroit Mercy	Modifying		X		

# MITRANSFER PATHWAYS ARTICULATION AGREEMENT: BIOLOGY

## OVERVIEW

In Fall 2017, the Michigan Community College Association (MCCA) and the Michigan Association of State Universities (MASU) received a one-time appropriation from the state of Michigan to support the development of multi-institutional associate to bachelor's degree transfer pathways. MCCA and MASU in partnership with the Michigan Independent Colleges and Universities (MICU) and the Michigan Association of Collegiate Registrars and Admissions Officers (MACRAO) convened the Transfer Steering Committee with more than 30 representatives from colleges and universities from across the state to develop the MiTransfer Pathways project. The MiTransfer Pathways project plan selected 12 programs with high enrollment and/or high labor market demand. The goal of the project was to build multi-institutional transfer pathways so students can enroll at any participating community college, complete an associate degree, transfer, and complete a bachelor's degree in the identified program of study.

In spring and fall of 2018, biology faculty from community colleges, public universities, and independent colleges and universities in Michigan met to identify courses that are required, recommended, optional or appropriate in the first and second year of the bachelor's degree programs at all participating universities. We refer to these commonly required courses as "MiTransfer Pathways courses." The MiTransfer Pathways courses in biology are:

- Cell/Molecular Biology
- Organismal Biology
- General Chemistry I
- General Chemistry II
- Organic Chemistry I
- Organic Chemistry II

These courses have been reviewed by receiving institutions and will be accepted for transfer and applied to the biology program at all participating institutions (unless otherwise indicated in this agreement). The participating institutions agreed to establish direct equivalencies between these courses. Direct equivalencies are established when a course at the sending institution transfers as a direct equivalent to the course at the receiving institution and the credit is transcribed as a department and number (i.e. BIO 105) instead of department and no number (i.e. BIO GEN or BIO 100X). Direct equivalency is preferred because students can see how the transferred course applies to the degree program.

In addition to identifying MiTransfer Pathways courses as described above, the faculty also identified Remaining Degree Requirements. The Remaining Degree Requirements identified by receiving institutions (universities) include courses that students can transfer from the community college but were not identified as MiTransfer Pathways courses because they were not accepted at every participating receiving institution. The Remaining Degree Requirements identified by sending

## MITRANSFER PATHWAYS ARTICULATION AGREEMENT: BIOLOGY

institutions (community colleges) included courses or requirements that meet community college degree requirements but will not necessarily transfer to participating universities. Participating institutions submitted program worksheets (see Appendices A and B) that outlined these courses. Participating institutions will use these worksheets to communicate requirements to students.

### TERMS OF THE AGREEMENT

1. This agreement is effective on December 6, 2019.
2. Participating institutions agree that all courses must be completed with a grade of C (2.0) or better unless otherwise indicated by the receiving institution.
3. Participating institutions agree that to use this agreement, students must apply and be admitted to the participating institution and to the program if the program requires secondary admission. Receiving institutions agree to communicate the application process for institution and program admissions for transfer students on a publicly available website and through advising.
4. Participating institutions agree to accept the Michigan Transfer Agreement (MTA) in accordance with the institutions' MTA policy.
5. Participating institutions agree to award equivalent credit for MiTransfer Pathways courses (see Course Equivalency Matrices in Appendix C) and apply courses to the bachelor's degree requirements unless otherwise noted in the Course Equivalency Exceptions documented in Appendix D. If no direct equivalent exists because the course is not offered or required at the receiving institution, then the receiving institution agrees to accept the course and apply the course toward the Biology degree program. If the community college does not offer the course, the community college should communicate this information to students on a publicly available website and/or the Michigan Transfer Network at [mitransfer.org](http://mitransfer.org) and help students find an equivalent course at other institutions.
6. Participating institutions agree to upload course equivalencies for MiTransfer Pathways courses to the Michigan Transfer Network at [mitransfer.org](http://mitransfer.org).
7. Receiving institutions agree to accept the Remaining Degree Requirements as outlined in the receiving institutions' Program Worksheet included in Appendix B. Participating institutions agree to work toward awarding direct equivalency for Remaining Degree Requirements, apply courses to the bachelor's degree requirements, and add course equivalencies to the Michigan Transfer Network.

## MITTRANSFER PATHWAYS ARTICULATION AGREEMENT: BIOLOGY

8. Sending institutions agree that Remaining Degree Requirements identified by community colleges that are not required by the receiving institution may not transfer or may not apply to bachelor's degree requirements at the receiving institution.
9. Alternative credit awarded by the sending institution through AP, CLEP, IB, credit earned through credit for prior learning, or other means may be accepted and applied to the degree program at the discretion of the university. Sending institutions may apply alternative credit to the associate degree, but students should confirm whether or not credit is acceptable at receiving institutions.
10. Students may earn credit from multiple institutions as long as the course was completed at a sending institution that is participating in the agreement. There is no assurance that credits earned from institutions not participating in the agreement will apply.
11. Participating institutions agree to maintain up-to-date course equivalencies and information about their participation with this agreement. This information will be made publicly available through their own systems and on the [mittransfer.org](http://mittransfer.org) website.
12. In the performance of their respective duties and obligations under this Agreement, each Party is an independent contractor, and neither is the agent, employee, or servant of the other. Each is responsible only for its own conduct.

# MITRANSFER PATHWAYS ARTICULATION AGREEMENT: BIOLOGY

## MAINTENANCE AND REVIEW

### *Modifications to Worksheets and Equivalencies*

Colleges and universities will use the worksheets in Appendix A and B as the basis to advise transfer students. Any changes to program worksheets in Appendix A and B should be communicated to participating institutions as soon as possible to avoid students completing courses that will not transfer.

Changes may include:

- Adding programs in the pathway (e.g., add Environmental Studies to the Biology pathway);
- Modifying, removing, or adding MiTransfer Pathways courses;
- Modifying, removing, or adding courses to the Remaining Degree Requirements;
- Materially modifying the educational experience or content of the MiTransfer Pathways courses.

If any of the aforementioned changes occur, participating institutions are expected to communicate with their sector representative from the Michigan Association of State Universities (MASU), Michigan Community College Association (MCCA), or Michigan Independent Colleges and Universities (MICU). These changes will be vetted among participating institutions, including reviewing and establishing equivalencies where needed. Changes to the worksheets and equivalencies will be documented and available at [mitransfer.org](http://mitransfer.org) website.

### *Joining the Agreement*

Institutions can join the agreement at any time and should contact their sector representative at the Michigan Association of State Universities, the Michigan Community College Association, or the Michigan Independent Colleges and Universities. Institutions that join the agreement will be required to comply with the terms of the agreement.

### *Renewing the Agreement*

This agreement will be up for renewal on June 30, 2022. The Michigan Community College Association, the Michigan Association of State Universities, and the Michigan Independent Colleges and Universities agree to coordinate renewal of this agreement during the 2021-2022 academic year. Participating institutions may choose to leave the agreement at that time.



# MITRANSFER PATHWAYS ARTICULATION AGREEMENT: BIOLOGY

## SIGNATURES

By signing this agreement, institutions agree to the terms of the agreement and maintenance and review.

### MICHIGAN COMMUNITY COLLEGE ASSOCIATION

SIGNATURE	NAME	TITLE	INSTITUTION
<i>Deborah A. Bayer, MS</i>	Deborah A. Bayer, MS	Vice President of Instruction	Alpena Community College
<i>Deborah J. Hautau</i>	Deborah J. Hautau	Biology Faculty	Alpena Community College
<i>Donald C. MacMaster, Ed.D.</i>	Donald C. MacMaster, Ed.D.	President	Alpena Community College
<i>Jeremy Belanger</i>	Jeremy Belanger	Executive Director of Transfer & Student Advising	Bay College
<i>Jean Goodnow, Ph.D.</i>	Jean Goodnow, Ph.D.	President	Delta College
<i>Reva Curry, Ph.D</i>	Reva Curry, Ph.D	Vice President of Instruction/Learning Services	Delta College
<i>Virginia Przygocki</i>	Virginia Przygocki	Dean, Career Education and Learning Partnerships	Delta College
<i>David H. Devier</i>	David H. Devier	President	Glen Oaks Community College
<i>Michael Goldin</i>	Michael Goldin	Interim Dean of Academics	Glen Oaks Community College
<i>George McNulty</i>	George McNulty	President	Gogebic Community College
<i>Bill Pink</i>	Bill Pink	President	Grand Rapids Community College
<i>Brian Knetl</i>	Brian Knetl	Provost and Executive Vice President, Academic and Student Affairs	Grand Rapids Community College

## MITRANSFER PATHWAYS ARTICULATION AGREEMENT: BIOLOGY

<i>Janice Gilliland</i>	Janice Gilliland	Dean of the School of Science, Technology, Engineering and Mathematics	Henry Ford College
<i>Michael A. Nealon</i>	Michael A. Nealon	Vice President of Academic Affairs	Henry Ford College
<i>Dr. Daniel J. Phelan</i>	Dr. Daniel J. Phelan	President/CEO	Jackson College
<i>Dr. Kate Thirolf</i>	Dr. Kate Thirolf	Vice President for Instruction	Jackson College
<i>Dr. Todd Butler</i>	Dr. Todd Butler	Dean, Arts & Sciences	Jackson College
<i>Marshall Washington, Ph.D.</i>	Marshall Washington, Ph.D.	President	Kalamazoo Valley Community College
<i>Peter Linden</i>	Peter Linden	Provost and Vice President for Instruction and Student Services	Kalamazoo Valley Community College
<i>Carole J. Davis</i>	Carole J. Davis	Chair, Math and Science	Kellogg Community College
<i>Mark P. O'Connell</i>	Mark P. O'Connell	President	Kellogg Community College
<i>Paul R. Watson II</i>	Paul R. Watson II	Vice President for Instruction	Kellogg Community College
<i>Tonya P. Forbes</i>	Tonya P. Forbes	Dean, Arts and Sciences	Kellogg Community College
<i>Julie Lavender</i>	Julie Lavender	Vice President of Instructional Services	Kirtland Community College
<i>Thomas Quinn</i>	Thomas Quinn	President	Kirtland Community College
<i>Dr. Leslie Kellogg</i>	Dr. Leslie Kellogg	Provost and Vice President of Academic Affairs	Lake Michigan College
<i>Brent Knight</i>	Brent Knight	President	Lansing Community College

## MITRANSFER PATHWAYS ARTICULATION AGREEMENT: BIOLOGY

<i>Donald Ritzenhein, Ph.D.</i>	Donald Ritzenhein, Ph.D.	Provost and Vice President of the Learning Unit	Macomb Community College
<i>Christine M. Hammond, Ph.D.</i>	Christine M. Hammond, Ph.D.	President	Mid Michigan College
<i>Jennifer Fager, Ph.D.</i>	Jennifer Fager, Ph.D.	Vice President for Academic Affairs	Mid Michigan College
<i>Richard J. Smith, Ed.D.</i>	Richard J. Smith, Ed.D.	Associate Dean and Transfer Liaison	Mid Michigan College
<i>Grace Yackee</i>	Grace Yackee	Vice President of Instruction	Monroe County Community College
<i>Kevin Cooper</i>	Kevin Cooper	Dean of Science/Mathematics	Monroe County Community College
<i>Kojo Quartey</i>	Kojo Quartey	President	Monroe County Community College
<i>Robert Ferrentino</i>	Robert Ferrentino	President	Montcalm Community College
<i>Robert Spohr</i>	Robert Spohr	Vice President for Academic Affairs	Montcalm Community College
<i>Beverly Walker-Griffea</i>	Beverly Walker-Griffea	President	Mott Community College
<i>Chuck Wade</i>	Chuck Wade	Biology Faculty	Mott Community College
<i>Michelle Glenn</i>	Michelle Glenn	Interim Vice President of Academic Affairs	Mott Community College
<i>Todd Troutman</i>	Todd Troutman	Dean of Science & Mathematics	Mott Community College
<i>Dale Nesbary, Ph.D.</i>	Dale Nesbary, Ph.D.	President	Muskegon Community College
<i>Kelley Conrad</i>	Kelley Conrad	Vice President for Academic Affairs	Muskegon Community College
<i>David Roland Finley, Ph.D.</i>	David Roland Finley, Ph.D.	President	North Central Michigan College

## MITRANSFER PATHWAYS ARTICULATION AGREEMENT: BIOLOGY

<i>Debra Pharo</i>	Debra Pharo	Science and Mathematics Academic Area Chair	Northwestern Michigan College
<i>Stephen N. Siciliano</i>	Stephen N. Siciliano	Vice President for Educational Services	Northwestern Michigan College
<i>Timothy J. Nelson</i>	Timothy J. Nelson	President	Northwestern Michigan College
<i>M. Cathey Maze</i>	M. Cathey Maze	Vice Chancellor for Academic Affairs	Oakland Community College
<i>Cheryl Hawkins, PhD</i>	Cheryl Hawkins, PhD	Vice President and Chief Academic Officer	Schoolcraft College
<i>Conway Jeffress, PhD</i>	Conway Jeffress, PhD	President	Schoolcraft College
<i>Michele Kelly, PhD</i>	Michele Kelly, PhD	Dean Liberal Arts and Science	Schoolcraft College
<i>David W Fleming</i>	David W Fleming	Vice President of Instruction	Southwestern Michigan College
<i>Julie Armstrong</i>	Julie Armstrong	Chief of Staff	St. Clair County Community College
<i>Kimberly Hurns, DM</i>	Kimberly Hurns, DM	Vice President for Instruction	Washtenaw Community College
<i>Patrick J. McNally</i>	Patrick J. McNally	Vice Chancellor, Curriculum and Distance Learning	Wayne County Community College District
<i>Dr. Brooke Portmann</i>	Dr. Brooke Portmann	Dean of Arts and Sciences	West Shore Community College
<i>Dr. Mark Kinney</i>	Dr. Mark Kinney	Vice President of Academics and Student Services	West Shore Community College
<i>Dr. Paul Bilinski</i>	Dr. Paul Bilinski	Associate Professor of Biology	West Shore Community College
<i>Scott Ward</i>	Scott Ward	President	West Shore Community College

# MITRANSFER PATHWAYS ARTICULATION AGREEMENT: BIOLOGY

## MICHIGAN ASSOCIATION OF STATE UNIVERSITIES

SIGNATURE	NAME	TITLE	INSTITUTION
<i>Dr. Jane M. Davison</i>	Dr. Jane M. Davison	Acting Dean, College of Science and Engineering	Central Michigan University
<i>Dr. Mary Schutten</i>	Dr. Mary Schutten	Provost and Executive Vice President	Central Michigan University
<i>Dr. Robert O. Davies</i>	Dr. Robert O. Davies	President	Central Michigan University
<i>Dana Heller, Ph.D.</i>	Dana Heller, Ph.D.	Dean, College of Arts & Sciences	Eastern Michigan University
<i>James M. Smith, Ph.D.</i>	James M. Smith, Ph.D.	President	Eastern Michigan University
<i>Marianne Laporte, Ph.D.</i>	Marianne Laporte, Ph.D.	Department Head, Biology	Eastern Michigan University
<i>Rhonda Longworth, Ph.D.</i>	Rhonda Longworth, Ph.D.	Provost and Executive Vice President	Eastern Michigan University
<i>Dr. Leonard Johnson</i>	Dr. Leonard Johnson	Associate Provost, Academic Affairs	Ferris State University
<i>Philomena V. Mantella</i>	Philomena V. Mantella	President	Grand Valley State University
<i>Maria C. Cimitile</i>	Maria C. Cimitile	Provost and Executive Vice President for Academic and Student Affairs	Grand Valley State University
<i>Chandrashekhar Joshi</i>	Chandrashekhar Joshi	Department Chair, Biological Sciences	Michigan Technological University
<i>David Hemmer</i>	David Hemmer	Dean, College of Sciences and Arts	Michigan Technological University
<i>Jacqueline Huntoon</i>	Jacqueline Huntoon	Provost and Senior Vice President for Academic Affairs	Michigan Technological University

## MITRANSFER PATHWAYS ARTICULATION AGREEMENT: BIOLOGY

<i>Richard Koubek</i>	Richard Koubek	President	Michigan Technological University
<i>Dr. John Rebers</i>	Dr. John Rebers	Professor & Department Head Biology	Northern Michigan University
<i>Kerri D. Schuiling</i>	Kerri D. Schuiling	Provost & VPAA	Northern Michigan University
<i>Rob Winn</i>	Rob Winn	Dean College of Arts & Sciences	Northern Michigan University
<i>James P. Lentini, D.M.A.</i>	James P. Lentini, D.M.A.	Senior Vice President for Academic Affairs and Provost	Oakland University
<i>Deborah Huntley</i>	Deborah Huntley	Provost	Saginaw Valley State University
<i>Catherine A. Davy</i>	Catherine A. Davy	Provost and Vice Chancellor for Academic Affairs	University of Michigan-Dearborn

### MICHIGAN INDEPENDENT COLLEGES AND UNIVERSITIES

<b>SIGNATURE</b>	<b>NAME</b>	<b>TITLE</b>	<b>INSTITUTION</b>
<i>Dr. Andrea Milner</i>	Dr. Andrea Milner	VP of Academics	Adrian College
<i>Lisa Lewis</i>	Lisa Lewis	Provost	Albion College
<i>Sean Burke</i>	Sean Burke	Provost	Alma College
<i>Christon Arthur</i>	Christon Arthur	Provost	Andrews University
<i>Amy Rebok Rosenthal</i>	Amy Rebok Rosenthal	Dean, Undergraduate Education	Andrews University
<i>Robert Zdor</i>	Robert Zdor	Biology Department Chair	Andrews University
<i>Steven Montreal, Ph.D.</i>	Steven Montreal, Ph.D.	Dean of School of Arts and Sciences	Concordia University Ann Arbor

## MITRANSFER PATHWAYS ARTICULATION AGREEMENT: BIOLOGY

<i>Johnathan Marko</i>	Johnathan Marko	Dean of Undergraduate Education	Cornerstone University
<i>Gilda Gely, Ph.D.</i>	Gilda Gely, Ph.D.	Executive Vice President for Academics and Provost	Davenport University
<i>Richard J. Pappas, Ed.D.</i>	Richard J. Pappas, Ed.D.	President	Davenport University
<i>Maria Vaz</i>	Maria Vaz	Vice President for Academic Affairs/Provost	Lawrence Technological University
<i>Dr. Srini Kambhampati</i>	Dr. Srini Kambhampati	Dean of the College of Arts and Science	Lawrence Technological University
<i>Paul E. Burkhardt</i>	Paul E. Burkhardt	Provost	The University of Olivet
<i>Dr. Brian Stogner</i>	Dr. Brian Stogner	President	Rochester University
<i>Dr. David Brackney</i>	Dr. David Brackney	Chair, Department of Science and Mathematics	Rochester University
<i>Dr. Remylin Bruder</i>	Dr. Remylin Bruder	Provost	Rochester University
<i>Sharon Weber</i>	Sharon Weber	Vice President of Academic Affairs	Siena Heights University
<i>Ronald Delap</i>	Ronald Delap	Associate Vice President of Academic Affairs	Spring Arbor University
<i>Antoine M. Garibaldi, Ph.D.</i>	Antoine M. Garibaldi, Ph.D.	President	University of Detroit Mercy
<i>Katherine E Snyder, Ph.D.</i>	Katherine E Snyder, Ph.D.	Dean, College of Engineering and Science	University of Detroit Mercy
<i>Pamela Zarkowski, J.D., MPH</i>	Pamela Zarkowski, J.D., MPH	Provost and Vice President of Academic Affairs	University of Detroit Mercy

APPENDIX A:  
Participating Community College MiTransfer Biology Pathway Worksheets





# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Alpena Community College</b>
Degree/Program	<b>Biology</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 161	Gen. College Biology I	4
Organismal Biology	BIO 162	Gen. College Biology II	4
General Chemistry I	CEM 121	Gen. and Inorg. Chemistry I	4
General Chemistry II	CEM 122	Inorg. Chem & Quan. Analysis	4
Organic Chemistry I	CEM 221	Organic Chem I	4
Organic Chemistry II	CEM 222	Organic Chem II	4
TOTAL CREDITS			24

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
American Government requirement	PLS 221 or 222; or HST 221 and 222	American Government and Politics or State and Local Government; US History I and US History II	MTA Social Science
Elective	MTH 131 or 223	Calculus I or Statistical Methods	5 or 4
Elective	PHY 121	College Physics I	4
Elective	PHY 122	College Physics II	4
Elective			1-2
		CC Only: Add remaining hours	14
TOTAL CREDITS			60



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Bay College</b>
Degree/Program	<b>AS-Biology</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL 112	Cells and Molecules	4
Organismal Biology	BIOL 110	Evolution and Diversity	4
General Chemistry I	CHEM 110	General Chemistry I	5
General Chemistry II	CHEM 112	General Chemistry II	5
Organic Chemistry I	CHEM 201	Organic Chemistry I	4
Organic Chemistry II	CHEM 202	Organic Chemistry II	4
TOTAL CREDITS			26

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Recommendation	MATH 210	Statistics	4
Program Electives	Choice	Choice	12
		CC Only: Add remaining hours	16
TOTAL CREDITS			60



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Delta College</b>
Degree/Program	<b>A.S. Biology</b>
Credits Required	<b>62</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 171	Integrated General Biology I	4
Organismal Biology	BIO 172W	Integrated General Biology II	4
General Chemistry I	CHM 111	General and Inorganic Chemistry I	5
General Chemistry II	CHM 112	General and Inorganic Chemistry II	5
Organic Chemistry I	CHM 210 and 210LW	Organic Chemistry I and Laboratory	5
Organic Chemistry II	CHM 220 and 220LW	Organic Chemistry II and Laboratory	5
TOTAL CREDITS			28

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Lifelong Wellness (from list)			2
		CC Only: Add remaining hours	2
TOTAL CREDITS			62



## BIOLOGY MiTRANSFER PATHWAY

### DEGREE PROGRAM INFORMATION

Institution	<b>Glen Oaks Community College</b>
Degree/Program	<b>Associate of Science/ Science</b>
Credits Required	<b>60</b>

### MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

### MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 121	Gen Bio I	4
Organismal Biology	BIO 122	Gen Bio II	4
General Chemistry I	CHEM 133	General Chemistry I	4
General Chemistry II	CHEM 134	General Chemistry II	4
Organic Chemistry I	CHEM 210	Organic Chemistry I	4
Organic Chemistry II	CHEM 211	Organic Chemistry II	4
TOTAL CREDITS			24

### REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
	MATH 161	Calculus I	4
Math and/or Science Electives	BIO, GEOL, GEOG, PHYS, and MATH prefix		8 or 9
		Remaining hours	
TOTAL CREDITS			60 or 61



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>GOGEBIC COMMUNITY COLLEGE</b>
Degree/Program	<b>Biological Sciences</b>
Credits Required	<b>64-66</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO101	Principles of Biology	4
Organismal Biology	BIO102	Biological Diversity	4
General Chemistry I	CHM151	General & Inorganic Chemistry	5
General Chemistry II	CHM152	Gen & Inorganic Chemistry II	5
Organic Chemistry I	CHM201	Organic Chemistry I	4
Organic Chemistry II	CHM202	Organic Chemistry II	4
TOTAL CREDITS			22

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Requirement	MTH150	Calculus I	5
Program Requirement	ORI100	College Experience	1
Math/Science Electives			12-14
		CC Only: Add remaining hours	18-20
TOTAL CREDITS			64-66



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Grand Rapids Community College</b>
Degree/Program	<b>Associate of Arts/Associate of Science</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BI 151	Introduction to Cells, Molecules, and Genes	4
Organismal Biology	BI 152	Biological Diversity	4
General Chemistry I	CHM 130 and CHM 131	General Chemistry I and General Chemistry I Lab	4 + 1
General Chemistry II	CHM 140 and CHM 141	General Chemistry II and General Chemistry II Lab	4 + 1
Organic Chemistry I	CHM 260 and CHM 261	Organic Chemistry I and Organic Chemistry I Lab	4 + 1
Organic Chemistry II	CHM 270 and CHM 271	Organic Chemistry II and Organic Chemistry II Lab	4 + 1
TOTAL CREDITS			28

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
GRCC currently has a specific Pre-Biology program in its <a href="#">Catalog</a> that may have additional coursework outlined based primarily on transfer institution requirements. However, besides MTA, GRCC does not have any additional degree requirements (such as government, wellness, etc).			
		CC Only: Add remaining hours	10
TOTAL CREDITS			60



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Henry Ford College</b>
Degree/Program	<b>Associate in Science / Biology</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 152	Cells and Molecular Biology	4
Organismal Biology	BIO 150	Biology: Organisms, Genes, and Ecology	4
General Chemistry I	CHEM 141	Principles of General and Inorganic Chemistry I	5
General Chemistry II	CHEM 142	Principles of General and Inorganic Chemistry II	5
Organic Chemistry I	CHEM 241 AND CHEM 243	Organic Chemistry I AND Microscale Organic Chemistry Laboratory I	6
Organic Chemistry II	CHEM 242 AND 244	Organic Chemistry II AND Microscale Organic Chemistry Laboratory II	6
TOTAL CREDITS			30

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Computer Technology	Choose from list of approved courses		3
		CC Only: Add remaining hours	4
TOTAL CREDITS			7



## ASSOCIATE DEGREE PROGRAM INFORMATION

Institution	Jackson College
Degree/Program	Associate in Science
Credits Required	60

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 161	General Biology I	4 (MTA)
Organismal Biology	BIO 162	General Biology II	4
General Chemistry I	CEM 141	General Chemistry I	5 (MTA)
General Chemistry II	CEM 142	General Chemistry II	5
Organic Chemistry I	CEM 241	Organic Chemistry I	5
Organic Chemistry II	CEM 242	Organic Chemistry II	5

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They might not be accepted for transfer by universities participating in the agreement. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
First Year Experiencer	SEM 140	Seminar in Life Pathways	3
GEO 2: Equity and Inclusion in a Diverse Society	Selection for GEO 2 list	Some MTA courses meet this req.	3
<b>Remaining hours (transfer electives)</b>			17

## ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution.

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# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Kalamazoo Valley Community College</b>
Degree/Program	<b>Associate of Science (AS), Biological Sciences</b>
Credits Required	<b>62</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 101	Cellular Biology	4
Organismal Biology	BIO 104	Organismal Biology	4
General Chemistry I	CHM 120	General Chemistry I	4
General Chemistry II	CHM 130	General Chemistry II	4
Organic Chemistry I	CHM 220	Organic Chemistry I	5
Organic Chemistry II	CHM 230	Organic Chemistry II	5
TOTAL CREDITS			26

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Mathematics	MATH 160	Calculus I	5
Mathematics	MATH 220	Probability & Statistics	4
		CC Only: Add remaining hours	1
TOTAL CREDITS			62



## ASSOCIATE DEGREE PROGRAM INFORMATION

Institution	<b>Kellogg Community College</b>
Degree/Program	<b>Associate in Science - Biology</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL 110	Principles of Biology: Cellular	4
Organismal Biology	BIOL 109	Principles of Biology: Organismal	4
General Chemistry I	CHEM 110	General Chemistry 1	4
General Chemistry II	CHEM 111	General Chemistry 2	4
Organic Chemistry I	CHEM 201	Organic Chemistry 1	4
Organic Chemistry II	CHEM 202	Organic Chemistry 2	4

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They might not be accepted for transfer by universities participating in the agreement. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Requirement	FYS 101	First Year Seminar	1
Program Requirement	ENGL 151 or ENGL 151H	Freshman Composition or Freshman Comp Honors	3
Program Requirement	ENGL/COMM options	Many Options	3
Program Requirement	Personal & Cultural Engagement Core – MTA Humanities/Fine Arts	Many Options – 2 different disciplines	6
Program Requirement	Personal & Cultural Engagement – MTA Social Science	Many Options – 2 different disciplines	6
Program Requirement	MTA Mathematics	Many options	3-4
Program Requirement	Math	Many Options	4
Program Requirement	Service Learning Endorsement (SERV 100 or SERV 200 or completed in another course)	Service Learning	0-3
<b>Remaining hours (transfer electives)</b>			<b>8-11</b>

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## ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution.

Students should seek an appointment with an Academic Advisor to determine courses which best meet individual academic goals and to discuss transfer options including verification of courses towards the completion of the Michigan Transfer Agreement (MTA). Students must complete a minimum of 60 credit in approved courses to earn a degree at Kellogg Community College with a minimum cumulative grade point average of 2.0 or higher. Contact Academic Advising at [kellogg.edu/advising](http://kellogg.edu/advising) or call 269-965-4124.

Service-Learning endorsement is required! Additional required degree criteria is listed in the KCC Academic Catalog under degree and certificate requirements.

Students should work with an academic advisor to determine the best elective courses based on individual academic and transfer goals.



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Kirtland Community College</b>
Degree/Program	<b>Associate in Science and Arts</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 11700	Biology I for STEM Majors	4
Organismal Biology	BIO 11800	Biology II for STEM Majors	4
General Chemistry I	CHE 10101/CHE 10102	General Chemistry I & Lab	4/1
General Chemistry II	CHE 10201/CHE 10202	General Chemistry II & Lab	4/1
Organic Chemistry I	CHE 20101/CHE 20102	Organic Chemistry II & Lab	4/1
Organic Chemistry II	CHE 20201/CHE 20202	Organic Chemistry II & Lab	4/1
TOTAL CREDITS			28

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

**Students can choose from these courses as possible electives until they reach a total of 60 credits.**

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
	BIO 10100	Biology for Non-STEM Majors	4
	BIO 10700	Essentials of Anatomy & Physiology	4
	BIO 20100	General Zoology	4
	BIO 21002/BIO 21003	Microbiology & Lab	3/1
	BIO 23500	Anatomy & Physiology I	4
	BIO 23600	Anatomy & Physiology II	4
	CHE 10000	Chemical Science	4
		CC Only: Add remaining hours	Varies
TOTAL CREDITS			60



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Lake Michigan College</b>
Degree/Program	<b>Assoc. in Science/Biology</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL 111	Principles of Biology I	4
Organismal Biology	BIOL 112	Principles of Biology II	4
General Chemistry I	CHEM 111	General Chemistry I	4
General Chemistry II	CHEM 112	General Chemistry II	4
Organic Chemistry I	CHEM 203	Organic Chemistry I	4
Organic Chemistry II	CHEM 204	Organic Chemistry II	4
TOTAL CREDITS			24

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Biology	BIOL 205	Human Anatomy	4
Physical Education	PHED 200, 212 or 214	Healthful Living, Health & Fitness, or Personal Health	1
	General Electives		12
		CC Only: Add remaining hours	17
		TOTAL CREDITS	60



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Lansing Community College</b>
Degree/Program	<b>Biology AS</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL 127	Cell biology	4
Organismal Biology	BIOL 128	Organismal biology	4
General Chemistry I	CHEM 151/161	General Chemistry I	5
General Chemistry II	CHEM 152/162	General Chemistry II	4
Organic Chemistry I	CHEM 251	Organic Chemistry I	4
Organic Chemistry II	CHEM 252/272	Organic Chemistry II and lab	6
TOTAL CREDITS			27

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Elective from list (choose one)	BIOL 270	Human Genetics	3
	BIOL 275	Molecular Biology I	4
	BIOL 210	Natural Resource Conservation	4
	BIOL 260	Botany	4
	BIOL 265	Zoology	4
TOTAL CREDITS			60 or 61



## ASSOCIATE DEGREE PROGRAM INFORMATION

Institution	<b>Macomb Community College</b>
Degree/Program	<b>Associate of Science</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL 1000	General Biology I	4
Organismal Biology	BIOL 1010	General Biology II	4
General Chemistry I	CHEM 1170	General Chemistry I	4
General Chemistry II	CHEM 1180	General Chemistry II	4
Organic Chemistry I	CHEM 2260	Organic Chemistry I	4
Organic Chemistry II	CHEM 2280	Organic Chemistry II	4
Organic Chemistry Lab	CHEM 2270	Organic Chemistry Lab	2

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They might not be accepted for transfer by universities participating in the agreement. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
<b>Remaining hours (transfer electives)</b>			<b>34</b>

## ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution.



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Mid Michigan College</b>
Degree/Program	<b>Associate in Science/Math-Science Transfer</b>
Credits Required	<b>62</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 111	Fundamentals of Cellular and Molecular Biology	4
Organismal Biology	BIO 112	Fundamentals of Evolution and Diversity	4
General Chemistry I	CHM 111	General College Chemistry I	5
General Chemistry II	CHM 112	General College Chemistry II	5
Organic Chemistry I	CHM 245/255	Organic Chemistry and Lab I	5
Organic Chemistry II	CHM 246/256	Organic Chemistry and Lab II	5

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
		Remaining hours - Elective credits to meet degree minimum of 62	10





## BIOLOGY MiTRANSFER PATHWAY

### DEGREE PROGRAM INFORMATION

Institution	<b>Monroe County Community College</b>
Degree/Program	<b>Associate of Science/ Transfer Pathway- Biology</b>
Credits Required	<b>60</b>

### MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

### MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL 151	Biological Sciences I	4
Organismal Biology	BIOL 153	Biological Sciences II	4
General Chemistry I	CHEM 151	General College Chemistry I	4
General Chemistry II	CHEM 152	General College Chemistry II	4
Organic Chemistry I	CHEM 251	Organic Chemistry I	4
Organic Chemistry II	CHEM 252	Organic Chemistry II	4
TOTAL CREDITS			24

### REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
General Education	CIS 130	Introduction to Computer Information Systems	3
		Remaining hours	
TOTAL CREDITS			60



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Montcalm Community College</b>
Degree/Program	<b>MITransfer Pathway Biology Associate of Science</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL121	College Biology I	4
Organismal Biology	BIOL122	College Biology II	4
General Chemistry I	CHEM220	College Chemistry I	5
General Chemistry II	CHEM221	College Chemistry II	5
Organic Chemistry I	CHEM251	Organic Chemistry I	5
Organic Chemistry II	CHEM252	Organic Chemistry II	5
TOTAL CREDITS			28

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Elective credits for a total of 60			
English Requirement	ENGL 100	Freshman English 1	3
MTA Math requirement	MATH 159	College Algebra	4
MTA Social Science requirement	POLI 240	American Political System	3
Communication Requirement	COMM 220 or 210	Interpersonal Communications or Speech	3
		CC Only: Add remaining hours	
TOTAL CREDITS			60



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Mott Community college</b>
Degree/Program	<b>Associates in Science/Biology</b>
Credits Required	<b>63 or 64</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	Biol 111	Fundamentals of Biology	4
Organismal Biology	Biol 112	Diversity of life	4
General Chemistry I	Chem 131	General Chemistry I	5
General Chemistry II	Chem 132	General Chemistry II	5
Organic Chemistry I	Chem 237	Organic Chemistry I	5
Organic Chemistry II	Chem 238	Organic Chemistry II	5
TOTAL CREDITS			28

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
		CC Only: Add remaining hours	
TOTAL CREDITS			



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Muskegon Community College</b>
Degree/Program	<b>Associate in Science and Arts</b>
Credits Required	<b>62</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology (MTA Course)	BIOL 130L&L	General Biology I	4
Organismal Biology	BIOL 131L&L	General Biology II	4
General Chemistry I (MTA Course)	CHEM 101LEC and CHEM 100A	Gen and Inorganic Chem 1 and Lab	5
General Chemistry II	CHEM 102LEC and CHEM 102A	Gen and Inorganic Chem 2 and lab	5
Organic Chemistry I	CHEM 201E and CHEM 201F	Organic Chem 1 and Lab	5
Organic Chemistry II	CHEM 202F and CHEM 202G	Organic Chem 2 and Lab	5
TOTAL CREDITS			28

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
General Education	CIS 110 or CIS 120A	Computer Concepts or Intro to Computer Information Systems	3
General Education	Physical Education	Selection of Courses	2
General Education	Selection of Courses	Selection of Courses	3
Electives	Selection of Courses	Selection of Courses	5
TOTAL CREDITS			13



## ASSOCIATE DEGREE PROGRAM INFORMATION

Institution	<b>North Central Michigan College</b>
Degree/Program	<b>Associate of Science with a Concentration in Biology</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 151	General Biology I (MTA)	4
Organismal Biology	BIO 152	General Biology II	4
General Chemistry I	CEM 121	Principles of Chemistry I (MTA)	5
General Chemistry II	CEM 122	Principles of Chemistry II	5
Organic Chemistry I	CEM 231	Organic Chemistry I	5
Organic Chemistry II	CEM 232	Organic Chemistry II	5

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They might not be accepted for transfer by universities participating in the agreement. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
General Education	ENG 112	English Composition II	3
General Education	COM 111 or COM 170	Public Speaking or Interpersonal Communications	3
<b>Remaining hours (transfer electives)</b>			7-12

## ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution.

-MATH 130-College Algebra or higher satisfies the Associate of Science math requirement and can be used in the additional Science and Math electives section of the A.S. degree.

-A minimum of 60 earned credits required to complete degree.



# BIOLOGY MiTRANSFER PATHWAY

## DEGREE PROGRAM INFORMATION

Institution	<b>Northwestern Michigan College</b>
Degree/Program	<b>Associate in Science &amp; Arts (ASA)/ Biology</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 115	Cell, Plant & Ecosystem Biology	4
Organismal Biology	BIO 116	Genetic, Evolution & Animal Biology	4
General Chemistry I	CHM 150	General Chemistry I	5
General Chemistry II	CHM 151	General Chemistry II	5
Organic Chemistry I	CHM 250	Organic Chemistry I	5
Organic Chemistry II	CHM 251	Organic Chemistry II	5
TOTAL CREDITS			28

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
		Remaining hours	
TOTAL CREDITS			



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Oakland Community College</b>
Degree/Program	<b>Associate in Science</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 1530	Molecular Biology	4
Organismal Biology	BIO 1560	Organismal Biology	4
General Chemistry I	CHE 1510	General Chemistry I	4
General Chemistry II	CHE 1520	General Chemistry II	4
Organic Chemistry I	CHE 2610	Organic Chemistry I	4
Organic Chemistry II	CHE 2620	Organic Chemistry II	4
TOTAL CREDITS			24

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
		CC Only: Add remaining hours	14
TOTAL CREDITS			60



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	Schoolcraft College
Degree/Program	Associate in Science
Credits Required	60

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL 120	Principles of Biology 1	5
Organismal Biology	BIOL 130	Principles of Biology 2	5
General Chemistry I	CHEM 111	General Chemistry 1	4
General Chemistry II	CHEM 117	General Chemistry 2 and Qualitative Analysis	5
Organic Chemistry I	CHEM 213	Organic Chemistry 1	5
Organic Chemistry II	CHEM 214	Organic Chemistry 2	5
TOTAL CREDITS			29

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Select 7 additional credits from the MTA list			7
		CC Only: Add remaining hours	7
TOTAL CREDITS			60





# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Southwestern Michigan College</b>
Degree/Program	<b>A.S. Biology</b>
Credits Required	<b>63</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL 101	Gen. Biology I	5
Organismal Biology	BIOL 102	Gen. Biology II	5
General Chemistry I	CHEM 101	General Chemistry I	5
General Chemistry II	CHEM 102	General Chemistry II	5
Organic Chemistry I	CHEM 201	Organic Chem I	5
Organic Chemistry II	CHEM 202	Organic Chem II	5
TOTAL CREDITS			30

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Mathematics	MATH 130	Precalculus	5
Physics	PHYS 101	Intro Physics I	5
Physics	PHYS 102	Intro Physics II	5
		CC Only: Add remaining hours	15
TOTAL CREDITS			63



## BIOLOGY MiTRANSFER PATHWAY

### DEGREE PROGRAM INFORMATION

Institution	<b>St. Clair County Community College</b>
Degree/Program	<b>Associate in Science/ Biology</b>
Credits Required	<b>60</b>

### MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

### MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 120	Cellular and Molecular Biology	4
Organismal Biology	BIO 121	Organismal Biology	4
General Chemistry I	CHM 111	Chemistry Theory and Principles with Analysis	5
General Chemistry II	CHM 112	Chemistry Theory and Principles with Analysis	5
Organic Chemistry I	CHM 215	Organic Chemistry I	5
Organic Chemistry II	CHM 216	Organic Chemistry II	5
<b>TOTAL CREDITS</b>			<b>28</b>

### REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
		Remaining hours	2
<b>TOTAL CREDITS</b>			<b>60</b>



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Washtenaw Community College</b>
Degree/Program	<b>Associate in Science in Math and Science – Biology Concentration</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 162	General Biology II Cells & Molecules	4
Organismal Biology	BIO 161	General Biology I Ecology and Evolution	4
General Chemistry I	CEM 111	General Chemistry I	4
General Chemistry II	CEM 122	General Chemistry II	4
Organic Chemistry I	CEM 211	Organic Chemistry I	4
Organic Chemistry II	CEM 222	Organic Chemistry II	4
TOTAL CREDITS			16

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Requirement - Select one course from the following:	BIO 111,  BIO 208, BIO 215, BIO 227, or BIO 237	Anatomy & Physiology – Normal Structure & Function Genetics Cell & Molecular Biology Biology of Animals Microbiology	5  Or 4
Open Electives			7 - 8
		CC Only: Add remaining hours	
TOTAL CREDITS			60



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Wayne County Community College District</b>
Degree/Program	<b>Associate of Science</b>
Credits Required	<b>60</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 155	Introductory Biology	4
Organismal Biology			
General Chemistry I	CHM 136	General Chemistry I	4
General Chemistry II	CHM 145	General Chemistry II	4
Organic Chemistry I	CHM 250	Organic Chemistry I	4
Organic Chemistry II	CHM 252	Organic Chemistry II	4
TOTAL CREDITS			20

## REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
General Educations	Humanities	Dance, Philosophy, Music, Languages, MWS 102, Humanities, English 200 level	3
General Educations	Social Science	Economics, Geography, History, Psychology,	3
General Educations	Electives		4
		CC Only: Add remaining hours	
TOTAL CREDITS			60



## BIOLOGY MiTRANSFER PATHWAY

### DEGREE PROGRAM INFORMATION

Institution	<b>West Shore Community College</b>
Degree/Program	<b>Associate of Science/ Biology</b>
Credits Required	<b>63</b>

### MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

### MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 122	General Biology I	4
Organismal Biology	BIO 123	General Biology II	4
General Chemistry I	CHM 122	General Chemistry I	4
General Chemistry II	CHM 123	General Chemistry II	4
Organic Chemistry I	CHM 232	Organic Chemistry I	4
Organic Chemistry II	CHM 233	Organic Chemistry II	4
TOTAL CREDITS			24

### REMAINING DEGREE REQUIREMENTS

These are additional associate degree requirements that are not MTA or MiTransfer Pathways courses. They may not be accepted for transfer by universities participating in the agreement. If there are remaining hours, use the Remaining Degree Requirements in Appendix B identified by the university to which the student plans to transfer to select courses that meet bachelor's degree requirements.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Social Science/ Category C	Category C	Diverse Disciplines	3
Communications III/ Category C	SPE 101, 110, or 206	Principles of Public Speaking, Interpersonal Comm, Small Group Comm	3
Humanities & Fine Arts	Category C	Diverse Disciplines	3
AS	BIS 160, BIO 245	Desktop Apps, Genetics	3-4
		Remaining hours	
TOTAL CREDITS			

APPENDIX B:

Participating Four-Year College and University MiTransfer Biology Pathway Worksheets



### BACHELOR'S DEGREE PROGRAM INFORMATION

Institution	<b>Adrian College</b>
Degree/Program	<b>Bachelor of Arts - Biology</b>
Credits Required	<b>124 Semester Credit Hours</b>

### MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

### MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL131	General Biology I – Molecules and Cells	4 Cr Hrs
Organismal Biology	BIOL132	General Biology II – Organismal Biology	4 Cr Hrs
General Chemistry I	CHEM105/117	General Chemistry I and Lab	4 Cr Hrs
General Chemistry II	CHEM106/118	General Chemistry II and Lab	4 Cr Hrs
Organic Chemistry I	CHEM224/226	Organic Chemistry I and Lab	4 Cr Hrs
Organic Chemistry II	CHEM225/227	Organic Chemistry II and Lab	4 Cr Hrs

### REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
General Education Requirement	CCC100	Introduction to College Writing	3 Cr Hrs
General Education Requirement	CCC101	College Writing and Inquiry	3 Cr Hrs
General Education Requirements	CCC102	Public Speaking	3 Cr Hrs
General Education Requirements	ESAT100	Fitness/Wellness	2 Cr Hrs
General Education Requirements -Arts	ART100 ART101 ART103 ART215 MUS107	Three-Dimensional Design Two-Dimensional Design Drawing From Life Beginning Photography Introduction to Music	3 Cr Hrs
General Education Requirements – Modern Language	MLCF101 MLCS101 MLCG101 MLCH101	Elementary French I Elementary Spanish I Elementary German I Elementary Sign Language I	4 Cr Hrs
General Education Requirements – Modern Language	MLCF102 MLCS102	Elementary French II Elementary Spanish II	4 Cr Hrs

	MLCG102 MLCH102	Elementary German II Elementary Sign Language II	
General Education Requirements Math Skills	MATH100 MATH101	Mathematics for Liberal Arts Intermediate Algebra	4 Cr Hrs
General Education Requirements – Social Science	PSYC100 PSCI101 SOC104	General Psychology American Federal Government Introduction to Sociology	3 or 4 Cr Hrs
General Education Requirements - Humanities	AHIS201 AHIS202 COMM209 ENGL203 HIST105 HIST106	Western Art History I Western Art History II Interpersonal Communication Creative Writing US History to 1876 US History Since 1865	3 Cr Hrs
General Education Requirements – Natural Science Major Cognate	CHEM105/117 CHEM106/118	General Chemistry I and Lab General Chemistry II and Lab	4 Cr Hrs
General Education Requirements – Philosophy/Religion	PHIL101 PHIL104 PHIL105	Introduction of Philosophy Introduction to Ethics Logic	3 Cr Hrs 3 Cr Hrs 3 Cr Hrs

## ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution.

General elective credit hours will vary dependent upon the following degree requirements:

- Must complete a minimum of 124 credit hours
- Must complete a minimum of 30 credit hours of coursework at the 300- or 400-level
- Only 60 credit hours from a community college can be transferred in to Adrian College





## BACHELOR'S DEGREE PROGRAM INFORMATION

Institution	<b>Albion College</b>
Degree/Program	<b>Biology B.A.</b>
Credits Required	<b>32 Units (where one Unit is equal to four Credits)</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL 210	Cell and Molecular Biology	1 Unit + Lab (4-5 Credits)
Organismal Biology	BIOL 195	Ecology, Evolution and Biodiversity	1 Unit + Lab (4-5 Credits)
General Chemistry I	CHEM 101	Chemistry that Matters	1 Unit (4 Credits)
General Chemistry II	CHEM 152	Principles of Chemistry	1 Unit + Lab (4-5 Credits)
Organic Chemistry I	CHEM 154	Organic Structures and Reactivity	1 Unit + Lab (4-5 Credits)
Organic Chemistry II	CHEM 212	Organic Reactions and Mechanism	1 Unit + Lab (4-5 Credits)

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
English Composition (students earn Writing Proficiency with a grade of B or better)	ENGL 101	College Writing	1 Unit (4 Credits)
Approved Mode of Inquiry Equivalent Courses	Various – see notes below	Various – see notes below	Up to 5 Units

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## ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution.

Prospective students to Albion College are encouraged to become familiar with the Albion College Liberal Arts Core requirement. Students who have completed MTA requirements at their community college will be awarded fulfillment of all five Modes of Inquiry, accounting for half of the 10-course Core. Additional transfer coursework may be applied to each of the four Category Requirements, pending a successful petition by the student.

Courses listed on [www.mittransfer.org](http://www.mittransfer.org) that are approved as equivalent to Albion College Mode Courses will automatically fulfill that Mode of Inquiry requirement upon transfer.

Courses listed on [www.mittransfer.org](http://www.mittransfer.org) that are approved as equivalent to Albion College Category Courses may fulfill that Category requirement, pending a petition and review process.

For more information about the Albion College Core Requirement, please visit <https://www.albion.edu/offices/registrar/academic-catalogs/the-core-requirement/>

Students who transfer an equivalent of ENGL 101 (College Writing) with a B or better will be awarded fulfillment of the Albion College Writing Proficiency Requirement; otherwise, students may take ENGL 101 at Albion College and earn a B or better, or may take and pass the Writing Proficiency Exam.

For more information about transferring to Albion College, visit [www.albion.edu/admission/transfer](http://www.albion.edu/admission/transfer) , or email [admission@albion.edu](mailto:admission@albion.edu) .



## BACHELOR'S DEGREE PROGRAM INFORMATION

Institution	<b>Alma College</b>
Degree/Program	<b>Bachelor of Arts / Bachelor of Science in Biology</b>
Credits Required	<b>36-credits for the major, 100-credits additional for Core Curriculum and Open Electives to reach 136.</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Organismal Biology	BIO 180	Special Topics in Biology	4
General Chemistry I	CHM 115	Chemical Analysis	4
General Chemistry II	CHM 180	Special Topics in Chemistry	4
Organic Chemistry I	CHM 223	Organic Chemistry I	4
Organic Chemistry II	CHM 224	Organic Chemistry II	4
Cell / Molecular Biology	BIO 121	Foundations of Biology	4

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
First-Year Seminar	FYS-101	First Year Seminar	4
Writing Competency (WI)	ENG-101	Writing with Purpose	4
Second Language	SPN, FRN, GRM, LAT, ARB	Demonstrate Novice-High proficiency in foreign language	8
Math Competency	MTH-110 or approved college math course or sufficient score on the math placement exam	Liberal Arts Math	4

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## ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution.

### **Transfer Credit Policy (Policy replacing “Transfer Credit Evaluation” statement)**

Alma College accepts credit earned from regionally accredited colleges or universities in the United States. International credit is evaluated using guidance from AACRAO and World Education Services.

An evaluation of credit earned is available upon submission of an application and transcripts to the Admissions Office. Transfer students entering Alma College with an awarded associate’s degree or comparable work **will have the Explore and Theme requirements in the Core Curriculum waived**. “Comparable work” means the equivalent of four full-time college terms with a minimum of 56 Alma credits accepted for transfer. This must include at least three credits each of courses addressing laboratory science, arts or humanities, and social science, plus at least 9 additional credits of work outside of the primary area of emphasis.

All transfer students with 25+ credits will have the First Year Seminar (FYS) requirement and one Spring Term requirement waived. Students will still be required to take one Spring Term course at Alma. Limitations are as follows:

1. Only non-developmental courses that are graded “C” (2.0) or higher are accepted for credit.
2. All transfer students must complete the final 52 credits for the degree in residence at Alma or in an Alma-approved program.
3. Transferred credit must be documented by receipt of an official transcript from each institution attended.
4. Transfer credits from courses below the 100-level do not count toward the 136 credits required for graduation.



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Andrews University</b>
Degree/Program	<b>BS Biology</b>
Credits Required	<b>124</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether or not any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. Be aware that "double count" policies differ from institution to institution. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the College Algebra pathway.

## MITRANSFER PATHWAYS COURSES

Add the commonly agreed upon "pathways courses" which were identified at the MiTransfer Pathways Summit. If a course also fulfills an MTA distribution requirement, please list here but only count the hours in the MTA section.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL 165	Fundamentals of Biology	5
Organismal Biology	BIOL 166	Fundamentals of Biology	5
General Chemistry I	CHEM 131	General Chemistry I	4
General Chemistry II	CHEM 132	General Chemistry II	4
Organic Chemistry I	CHEM 231, Chem 241 (lab)	Organic Chemistry I	3, 1
Organic Chemistry II	CHEM 232, Chem 242 (lab)	Organic Chemistry II	3, 1
TOTAL CREDITS			26

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Cognate	PHYS 241	General Physics I	4
Program cognate	PHYS 242	General Physics II	4
Program Elective	HORT 226	Plant Systematics & ID	3
Program Cognate	MATH 195	Calculus I for Biology	4
CC Only: Add remaining hours			
TOTAL CREDITS			15



# BIOLOGY MiTRANSFER PATHWAY

Institution	<b>Central Michigan University</b>
Degree/Program	<b>Biology</b>
Credits Required	<b>120</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether or not any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. Be aware that "double count" policies differ from institution to institution. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 112	Foundations of Cell Biology	4
Organismal Biology	BIO 111	Foundations of Evolution and Diversity	4
General Chemistry I	CHM 131	General Chemistry I	4
General Chemistry II	CHM 132	General Chemistry II	4
Organic Chemistry I	CHM 345	Organic Chemistry I	3
Organic Chemistry II	CHM 346	Organic Chemistry II	3
TOTAL CREDITS			22

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Requirement	MTH 130	Pre-Calculus Mathematics	4
General Education	ENG 201	Intermediate Composition	3
		CC Only: Add remaining hours	
TOTAL CREDITS			7



## BACHELOR'S DEGREE PROGRAM INFORMATION

Institution	<b>Concordia University Ann Arbor</b>
Degree/Program	<b>BS/Biology</b>
Credits Required	<b>126</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO151	Functional Human Biology I	4
Organismal Biology	BIO152	Functional Human Biology II	4
General Chemistry I	CHEM141	General Chemistry I	4
General Chemistry II	CHEM142	General Chemistry II	4
Organic Chemistry I	CHEM241	Organic Chemistry I	4
Organic Chemistry II	CHEM242	Organic Chemistry II	4

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Core Requirement	HHP100	Stewardship of the Body	1
Core Requirement	HHP1XX	Activity Course	1
Major Requirement	BIO240	Zoology	4
Major Requirement	BIO244	Botany	4
Major Requirement	PHYS151	General Physics I	4
Major Requirement	PHYS152	General Physics II	4
Major Requirement	BIO260	Microbiology	4

## ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution.

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## BIOLOGY MiTRANSFER PATHWAY

### DEGREE PROGRAM INFORMATION

Institution	<b>Cornerstone University</b>
Degree/Program	<b>Bachelor of Science – Pre Medical Major</b>
Credits Required	<b>120</b>

### MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

### MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 151	General Biology	4
Organismal Biology	N/A		
General Chemistry I	CHM 121	General Chemistry I	4
General Chemistry II	CHM 122	General Chemistry II	4
Organic Chemistry I	CHM 230 and CHM-231	Organic Chemistry I (Org Chem Lab)	5
Organic Chemistry II	CHM 232 and CHM 233	Organic Chemistry II (Org Chem II lab)	5
<b>TOTAL CREDITS</b>			<b>22</b>

### REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Requirement	BIO 233	Zoology	4
Program Requirement			
Program Requirement			
<b>TOTAL CREDITS</b>			<b>4</b>





## BIOLOGY MiTRANSFER PATHWAY

### DEGREE PROGRAM INFORMATION

Institution	<b>Davenport University</b>
Degree/Program	<b>Bachelor of Science in Biological Laboratory Science</b>
Credits Required	<b>120</b>

### MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

### MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL110/BIOL110L	Foundations of Cell Biology/Lab	4
Organismal Biology	BIOL111/BIOL111L	Organisms and Populations/Lab	4
General Chemistry I	CHEM160/CHEM160L	General Chemistry I/Lab	4
General Chemistry II	CHEM161/CHEM161L	General Chemistry II/Lab	4
Organic Chemistry I	CHEM250/CHEM250L	Organic Chemistry I/Lab	6
Organic Chemistry II	CHEM255/CHEM255L	Organic Chemistry II/Lab	6
TOTAL CREDITS			28

### REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Requirement	BIOL221/221L	Anatomy & Physiology I/Lab	4
Program Requirement	BIOL222/222L	Anatomy & Physiology II/Lab	4
General Education	MATH150	Pre-Calculus	4
Program Requirement	PHYS210/PHYS210L	Required Science Course	4
Program Requirement	PHYS220/PHYS220L	Required Science Course	4
TOTAL CREDITS			20



# BIOLOGY PROGRAM WORKSHEET

## DEGREE PROGRAM INFORMATION

Institution	<b>Eastern Michigan University</b>
Degree/Program	<b>Biology, Bachelor of Science</b>
Credits Required	<b>124 hours</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether or not any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. Be aware that "double count" policies differ from institution to institution. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the College Algebra pathway.

## MITRANSFER PATHWAYS COURSES

Add the commonly agreed upon "pathways courses" which were identified at the MiTransfer Pathways Summit. If a course also fulfills an MTA distribution requirement, please list here but only count the hours in the MTA section.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 110/111	Introductory Biology I & Lab	3/2
Organismal Biology	BIO 120/121	Introductory Biology II & Lab	3/2
General Chemistry I	CHEM 121/122	General Chemistry I & Lab	3/1
General Chemistry II	CHEM 123/124	General Chemistry II & Lab	3/1
Organic Chemistry I	CHEM 371	Organic Chemistry I	3
Organic Chemistry II	CHEM 372/373	Organic Chemistry II & Lab	3/2
TOTAL CREDITS			26

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Requirement (Concentration)	PHY 221	Mechanics, Sound and Heat	4
Program Requirement (Concentration)	PHY 222	Electricity and Light	4
Program Requirement (Concentration)	STAT 170	Elementary Statistics	3
		CC Only: Add remaining hours	
TOTAL CREDITS			11



## BACHELOR'S DEGREE PROGRAM INFORMATION

Institution	<b>Ferris State University</b>
Degree/Program	<b>Bachelor of Science/Biology</b>
Credits Required	<b>120</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL 121	General Biology 1	4
Organismal Biology	BIOL 122	General Biology II	4
General Chemistry I	CHEM 121	General Chemistry I	5
General Chemistry II	CHEM 122	General Chemistry II	5
Organic Chemistry I	CHEM 321	Organic Chemistry I	5
Organic Chemistry II	CHEM 322	Organic Chemistry II	5

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
General Education	ENGL 250 or COMM 121		3
General Education	ENGL 311, 321 or 323		3
General Education	Culture Competency Elective (200 Level)		3
General Education	Self and Society Competency Elective (200 Level)		3
Major Requirements	Select 36 credits from major requirement list		36
Supporting Sciences	24-37 credits required (MATH 120 or higher, minimum of 17 credits in CHEM courses including biochemistry, minimum of 4 credits in PHYS courses)		24-37
Biology Application Area	Additional courses in Biology (must be advisor approved)		5
Electives	13-26 credits required		13-26



# BIOLOGY MiTRANSFER PATHWAY

Institution	<b>Grand Valley State University</b>
Degree/Program	<b>BS and BA in Biology (all programs)</b>
Credits Required	<b>120</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether or not any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. Be aware that "double count" policies differ from institution to institution. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 120	General Biology I with Lab	4
Organismal Biology	BIO 121	General Biology II with Lab	4
General Chemistry I	CHM 115	Principles of Chemistry I w/Lab	4
General Chemistry II	CHM 116	Principles of Chemistry II w/Lab	5
Organic Chemistry I	CHM 241	*Organic Chemistry I	4
Organic Chemistry II	CHM 242	*Organic Chemistry II	4
TOTAL CREDITS			26

\*GVSU Biology majors have two upper level chemistry sequences to choose from:

- CHM 231 (Introductory Organic Chemistry w/Lab) and CHM 232 (Introductory Biochemistry w/lab)
- CHM 241 and 242 (Organic Chemistry I and II) – for students interested in Pre-Medical, Pre-Vet, Pre-professional and Graduate School Programs

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hours
Minimum required prerequisite for chemistry and physics	MTH 122	**College Algebra	3
Minimum required prerequisite for PHY 220	MTH 123	**Trigonometry	3
Math Cognate Option	STA 215	Introductory Applied Statistics	3
Required/Core Course	BIO 215	Ecology w/Lab	4
Required/Core Course	BIO 210	Evolutionary Biology	3
Physics Option	PHY 220	***General Physics I w/lab	5

Physics Option	PHY 221	***General Physics II w/lab	5
TOTAL CREDITS			26

\*\*Math course selection will depend on required Chemistry and Physics options:

- MTH 122 or MTH 125 or MTH 201 required for CHM 116
- MTH 122 or MTH 201 required for PHY 200
- MTH 122 (College Algebra) and MTH 123 (Trigonometry) (or placement test) required for PHY 220
- MTH 201 (Calculus I) required for PHY 230
- MTH 202 (Calculus II) required for PHY 231
- MTH 122 (College Algebra) and MTH 123 (Trigonometry) (or placement test) required for MTH 201 (Calculus I)

\*\*\* GVSU Biology majors have three Physics sequences to choose from:

- PHY 200 (Physics for the Life Sciences w/lab)
- PHY 220 and 221 (algebra-based Physics w/labs) – for students interested in Pre-Medical, Pre-Vet, Pre-professional and Graduate School Programs
- PHY 230 and 231 (calculus based Physics w/labs) – for students interested in some select Pre-medical and Pre-professional programs. Students should consult university websites for program admission standards.



## BIOLOGY MiTRANSFER PATHWAY

### DEGREE PROGRAM INFORMATION

Institution	<b>Lawrence Technological University</b>
Degree/Program	<b>Bachelor of Science in Molecular &amp; Cell Biology</b>
Credits Required	<b>123</b>

### MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

### MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 1213/BIO 1221	Biology 1/Lab	4
Organismal Biology	BIO 1223/BIO 1231	Biology 2/Lab	4
General Chemistry I	CHM 1213/BIO 1221	University Chemistry 1/Lab	4
General Chemistry II	CHM 1223/1231	University Chemistry 2/Lab	4
Organic Chemistry I	CHM 2313/2311	Organic Chemistry I/Lab	4
Organic Chemistry II	CHM 2323/2321	Organic Chemistry 2/Lab	4
TOTAL CREDITS			24

### REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Requirement	MCS 2124	Statistics	4
Program Requirement	SSC/PSY 1000	Social Science/Psychology Elective	3
Program Requirement	BIO 2313/2321	Microbiology/Lab	4
Program Requirement	MCS 1414	Calculus 1	4
Program Requirement	PHY 2213/1221	College Physics I/Lab	4
Program Requirement	PHY 2223/1221	College Physics II/Lab	4
TOTAL CREDITS			23



# BIOLOGY MiTRANSFER PATHWAY

Institution	<b>Michigan Technological University</b>
Degree/Program	<b>Bachelor of Science in Biological Sciences (All concentrations: General Biology, Ecology, &amp; Pre-Professional)</b>
Credits Required	<b>128</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether or not any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. Be aware that "double count" policies differ from institution to institution. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Organismal Biology	BL 1110/1110	General Biology I	4
Cell/Molecular Biology	BL 1200/1210	General Biology II	4
General Chemistry I	CH 1150	University Chemistry I	3
	CH 1151	University Chemistry Lab I	1
General Chemistry II	CH 1160	University Chemistry II	3
	CH 1161	University Chemistry Lab II	1
Organic Chemistry I	CH 2410	Organic Chemistry I	3
	CH 2411	Organic Chemistry Lab I	1
Organic Chemistry II	CH 2420	Organic Chemistry II	3
	CH 2421	Organic Chemistry Lab II	2
TOTAL CREDITS			25

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Requirement (All)	PH 1110 (Lecture) and PH 1111 (Lab)	College Physics I and	3
		College Physics Lab I	1
Program Requirement (All)	PH 1210 (Lecture) and PH 1200 (Lab)	College Physics II and	3
		Physics by Inquiry II (Lab)	1
Program Requirement (All)	MA1135	Calculus for Life Sciences	4
CC Only: Add remaining hours			
TOTAL CREDITS			12



## BIOLOGY MiTRANSFER PATHWAY

Institution	<b>Northern Michigan University</b>
Degree/Program	<b>Biology (with concentrations in Botany, Ecology, General Biology, Microbiology, Physiology, or Zoology)</b>
Credits Required	<b>120</b>

### MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether or not any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. Be aware that "double count" policies differ from institution to institution. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

### MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BI 111	Introductory Biology - Principles	4
Organismal Biology	BI 112	Introductory Biology – Diversity	4
General Chemistry I	CH 111	General Chemistry I	5
General Chemistry II	CH 112	General Chemistry II	5
Organic Chemistry I	CH 315/CH 317 (lecture/lab) or CH 220	Organic Chemistry I Intro to Organic Chemistry	4/ 5
Organic Chemistry II	CH 325/CH 327 (lecture/lab): required for Botany, Microbiology, Physiology & Zoology concentrations	Organic Chemistry II	4
TOTAL CREDITS			26-27

### REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program requirement	PH 201	College Physics I	5
Program requirement	PH 202	College Physics II	5
Many students take physics in their junior or senior year, some take physics in their first two years.			
Only 1 semester of physics is required for students with Ecology or General Biology concentrations.			
		CC Only: Add remaining hours	
TOTAL CREDITS			10





# BIOLOGY PROGRAM WORKSHEET

Institution	<b>Oakland University</b>
Degree/Program	<b>Biology BA or BS</b>
Credits Required	<b>124 total credits</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether or not any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. Be aware that "double count" policies differ from institution to institution. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 1200 + BIO 1201	Biology I + Biology Lab	5
Organismal Biology	BIO 1300	Biology II	4
General Chemistry I	CHM 1440 + 1470	General Chemistry I + lab	5
General Chemistry II	CHM 1450 + 1480	General Chemistry II + lab	5
Organic Chemistry I	CHM 2340	Organic Chemistry I	4
Organic Chemistry II (B.S. Only)	CHM 2350	Organic Chemistry II	4
TOTAL CREDITS			27

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Requirement	STA 2220	Introduction to Statistics	4
Program Requirement	MTH 1441	Pre-calculus	4
Program Requirement (B.S. Only)	MTH 1554	Calculus I	4
Program Requirement	PHY (1010 or 1510) + 1100	(Gen or Intro) Physics I + Lab	5
Program Requirement	PHY (1020 or 1520) + 1110	(Gen or Intro) Physics II + Lab	5
BIO elective	BIO 3520	Intro to Human Microbiology	4
BIO elective	BIO 2100, 2101, and 2600	Human Anatomy & Physiology	9
CC Only: Add remaining hours			
TOTAL CREDITS			35



## BACHELOR'S DEGREE PROGRAM INFORMATION

Institution	<b>The University of Olivet</b>
Degree/Program	<b>Bachelor of Arts in Biology</b>
Credits Required	<b>120</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MITRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 111	Principles of Biology: Molecules to Cells	3
Organismal Biology	BIO 112	Principles of Biology: Organisms to Ecosystems	3
General Chemistry I	CEM 151	General Chemistry I	3
	CEM 153	General Chemistry I Laboratory	1
General Chemistry II	CEM 152	General Chemistry II	3
	CEM 154	General Chemistry II Laboratory	1
Organic Chemistry I	CEM 231	Organic Chemistry I	3
	CEM 233	Organic Chemistry I Laboratory	2
Organic Chemistry II	CEM 232	Organic Chemistry II	3
	CEM 234	Organic Chemistry II Laboratory	2

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Microbiology	BIO 207	Microbiology	3
Anatomy	BIO 211	Human Anatomy	3
	BIO 213	Human Anatomy Laboratory	1
Physiology	BIO 212	Physiology	3
	BIO 214	Physiology Laboratory	1
Pre-Calculus	MTH 150	Pre-Calculus	4
General Physics I with Lab	PHA 201	College Physics I	3
	PHA 203	College Physics I Laboratory	1
General Physics II with Lab	PHA 202	College Physics II	3
	PHA 204	College Physics II Laboratory	1

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## ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution.

The General Biology major does not require Organic Chemistry. However, the Biomedical concentration and the Biochemistry minor do require Organic Chemistry.

The additional courses are 100-200 level courses that students completing the Pre-Medical concentration with the Biochemistry minor would need to finish the major in two years.



## BIOLOGY MiTRANSFER PATHWAY

### DEGREE PROGRAM INFORMATION

Institution	<b>Rochester University</b>
Degree/Program	<b>Bachelor of Science in Biology</b>
Credits Required	<b>120</b>

### MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

### MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 1013/1011 Lab or BIO 1014	Biological Science I w/Lab	4
Organismal Biology	BIO 1024	Biological Science II w/Lab	4
General Chemistry I	CHE 1514	College Chemistry I I w/Lab	4
General Chemistry II	CHE 1524	College Chemistry II w/Lab	4
Organic Chemistry I	CHE 2514	Organic Chemistry I	4
Organic Chemistry II	CHE 2524	Organic Chemistry II	4
TOTAL CREDITS			24

### REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Requirement	BIO 2114	Human A and P I w/ Lab	4
Program Requirement	BIO 2124	Human A and P II w/ Lab	4
Program Requirement	BIO 3323/BIO 3321 Lab	Microbiology and Micro Lab	4
Program Requirement	PHS 2014	General Physics I	4
Program Requirement	PHS 2024	General Physics II	4
Program Requirement	MAT 1334	Pre-Calculus	4
TOTAL CREDITS			24



## BACHELOR'S DEGREE PROGRAM INFORMATION

Institution	<b>Saginaw Valley State University</b>
Degree/Program	<b>Biological Science (B.S)</b>
Credits Required	<b>124 credits (33 foundation credits – 43 required credits – 12 required electives)</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL*182 BIOL*182L	Intro to Cell and Molecular Biology Cell and Molecular Biology Lab	3 credits 1 credit
Organismal Biology	BIOL*181 BIOL*181L	Intro to Ecology, Evolution, Diversity/Ecology, Evolution, Diversity Lab	3 credits 1 credit
General Chemistry I	CHEM*111 CHEM*111L	General Chemistry I Lecture General Chemistry I Lab	4 credits 1 credit
General Chemistry II	CHEM*112 CHEM*112L	General Chemistry II Lecture General Chemistry II Lab	4 credits 1 credit
Organic Chemistry I	CHEM*230 CHEM*231	Organic Chemistry I Lecture Organic Chemistry I Lab	4 credits 1 credit
Organic Chemistry II	CHEM*330 CHEM*331	Organic Chemistry II Lecture Organic Chemistry II Lab	4 credits 1 credit

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
General Education Category 3 and Program Requirement	MATH*132B	Statistical Methods: Biostatistics	4 credits
General Education Category 3 and Program Requirement	MATH*140 <b>OR</b> MATH*161	Precalculus <b>OR</b> Calculus I	4 credits
General Education Category 4 and Program Requirement	PHYS*111/PHYS*111L and PHYS*112/PHYS*112L <b>OR</b> PHYS*211/PHYS*211L and PHYS*212/PHYS*212L	General Physics I (with lab) and General Physics II (with lab) <b>OR</b>	10 credits <b>OR</b> 10 credits

		Analytical Physics I (with lab) and Analytical Physics II (with lab)	
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### ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution.

A minor is required.



BACHELOR'S DEGREE PROGRAM INFORMATION

Institution	<b>Saginaw Valley State University</b>
Degree/Program	<b>Cell Biology, Molecular Biology, and Biomedical Sciences (B.S.)</b>
Credits Required	<b>124 credits (42 foundation credits – 29 required credits – 20 elective credits)</b>

MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL*182 BIOL*182L	Intro to Cell and Molecular Biology Cell and Molecular Biology Lab	3 credits 1 credit
Organismal Biology	BIOL*181 BIOL*181L	Intro to Ecology, Evolution, Diversity/Ecology, Evolution, Diversity Lab	3 credits 1 credit
General Chemistry I	CHEM*111 CHEM*111L	General Chemistry I Lecture General Chemistry I Lab	4 credits 1 credit
General Chemistry II	CHEM*112 CHEM*112L	General Chemistry II Lecture General Chemistry II Lab	4 credits 1 credit
Organic Chemistry I	CHEM*230 CHEM*231	Organic Chemistry I Lecture Organic Chemistry I Lab	4 credits 1 credit
Organic Chemistry II	CHEM*330 CHEM*331	Organic Chemistry II Lecture Organic Chemistry II Lab	4 credits 1 credit

REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
General Education Category 3 and Program Requirement	MATH*132B	Statistical Methods: Biostatistics	4 credits
General Education Category 3 and Program Requirement	MATH*140 <b>OR</b> MATH*161	Precalculus <b>OR</b> Calculus I	4 credits
General Education Category 4 and Program Requirement	PHYS*111/PHYS*111L and PHYS*112/PHYS*112L <b>OR</b> PHYS*211/PHYS*211L and PHYS*212/PHYS*212L	General Physics I (with lab) and General Physics II (with lab) <b>OR</b>	10 credits <b>OR</b> 10 credits

		Analytical Physics I (with lab) and Analytical Physics II (with lab)	
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### ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution.

As an interdisciplinary major, the Cell Biology, Molecular Biology, and Biomedical Major does not require a minor. Biology and Chemistry minors may not be earned with this major.





## BACHELOR'S DEGREE PROGRAM INFORMATION

Institution	<b>Saginaw Valley State University</b>
Degree/Program	<b>Ecology, Evolution and Organismal Biology (B.S.)</b>
Credits Required	<b>124 credits (38 foundation credits – 38 require credits – 12 min elective credits)</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL*182	Intro to Cell and Molecular Biology	3 credits
	BIOL*182L	Cell and Molecular Biology Lab	1 credit
Organismal Biology	BIOL*181	Intro to Ecology, Evolution, Diversity/Ecology, Evolution, Diversity Lab	3 credits
	BIOL*181L		1 credit
General Chemistry I	CHEM*111	General Chemistry I Lecture	4 credits
	CHEM*111L	General Chemistry I Lab	1 credit
General Chemistry II	CHEM*112	General Chemistry II Lecture	4 credits
	CHEM*112L	General Chemistry II Lab	1 credit
Organic Chemistry I	CHEM*230	Organic Chemistry I Lecture	4 credits
	CHEM*231	Organic Chemistry I Lab	1 credit
Organic Chemistry II	N/A	N/A	N/A

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
General Education Category 3 and Program Requirement	MATH*132B	Statistical Methods: Biostatistics	4 credits
General Education Category 4 and Program Requirement	PHYS*111	General Physics I	4 credits
	PHYS*111L	General Physics I Lab	1 credit
General Education Category 3 and Program Requirement	MATH*140 <b>OR</b> MATH*161	Precalculus <b>OR</b> Calculus I	4 credits
General Education Category 4 and Program Requirement	PHYS*106A <b>OR</b> PHYS*112	Earth & Space Science: Physical Geology <b>OR</b> General Physics II	4 credits

General Education Category 8 <b>OR</b> General Education Category 6 and Program Requirement	GEOG*201 <b>OR</b> GEOG*202	World Cultural/Regional Geography <b>OR</b> North America Regional Geography	3 credits
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## ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution.

A minor is required. Biology minors may not be earned with this major.



## BACHELOR'S DEGREE PROGRAM INFORMATION

Institution	<b>Saginaw Valley State University</b>
Degree/Program	<b>Environmental Science (B.S.)</b>
Credits Required	<b>124 credits (22 foundation credits – 52 required core credits – 13 elective credits – 6 field research experience credits)</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOL*182 BIOL*182L	Intro to Cell and Molecular Biology Cell and Molecular Biology Lab	3 credits 1 credit
Organismal Biology	BIOL*181 BIOL*181L	Intro to Ecology, Evolution, Diversity Ecology, Evolution, Diversity Lab	3 credits 1 credit
General Chemistry I	CHEM*111 CHEM*111L	General Chemistry I Lecture General Chemistry I Lab	4 credits 1 credit
General Chemistry II	CHEM*112 CHEM*112L	General Chemistry II Lecture General Chemistry II Lab	4 credits 1 credit
Organic Chemistry I	CHEM*230	Organic Chemistry I Lecture	4 credits
Organic Chemistry II	---	---	---

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
General Education Category 3 and Program Requirement	MATH*132B	Statistical Methods: Biostatistics	4 credits
General Education Category 3 and Program Requirement	MATH*140 <b>OR</b> MATH*161	Precalculus <b>OR</b> Calculus I	4 credits
Partial General Education Category 4 and Program Requirement	PHYS*111/PHYS*111L and PHYS*112/PHYS*112L <b>OR</b> PHYS*211/PHYS*211L and PHYS*212/PHYS*212L	General Physics I w/ Lab and General Physics II w/ Lab <b>OR</b> Analytical Physics I w/ Lab and Analytical Physics II w/ Lab	10 credits

General Education Category 4 and Program Requirement	PHYS*106A	Earth & Space Science: Physical Geology	4 credits
Program Requirement	BIOL*211	Botany	3 credits
General Education Category 4 and Program Requirement	GEOG*101	Intro to Physical Geography	3 credits

## ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution.

This is an interdisciplinary major and does not require a minor.

The Bachelor of Science in Environmental Science offers comprehensive training in a variety of disciplines including Biology, Chemistry, and Geography. Students will be prepared for careers with government agencies, non-profit organizations, and businesses, as well as for graduate studies. Required classes provide both a firm scientific foundation and an environmental context for the science. Additionally, the major is characterized with extensive hands-on field and laboratory experiences as well as a required internship. Several electives provide an opportunity for students to customize their degree.



### BACHELOR'S DEGREE PROGRAM INFORMATION

Institution	<b>Siena Heights University</b>
Degree/Program	<b>Bachelor of Science</b>
Credits Required	<b>120 sh</b>

### MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

### MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 141	Basic Laboratory Biology I	4
Organismal Biology	BIO 241	Animal Biology	4
General Chemistry I	CHE 141	General Chemistry 1	4
General Chemistry II	CHE 142	General Chemistry 2	4
Organic Chemistry I	CHE 241	Organic Chemistry 1	4
Organic Chemistry II	CHE 242	Organic Chemistry 2	4

### REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Requirement	BIO 242	Plant Biology	4
Program Requirement	PHY 141	General Physics 1	4
Program Requirement	PHY 142	General Physics 2	4
Program Requirement	TSC 101	Fundamentals of Speech Communication	3

### ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution.

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## BIOLOGY MiTRANSFER PATHWAY

### DEGREE PROGRAM INFORMATION

Institution	<b>Spring Arbor University</b>
Degree/Program	<b>BA/BS: Biology, Environmental Biology, Biology Pre-med, Biology Secondary Teaching Certification</b>
Credits Required	<b>120</b>

### MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

### MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program around the state among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 112	Introduction to Biology II	4
Organismal Biology	BIO 111	Introduction to Biology I	4
General Chemistry I	CHE 111	General Chemistry I	4
General Chemistry II	CHE 112	General Chemistry II	4
Organic Chemistry I	CHE 201	Organic Chemistry I	5
Organic Chemistry II	CHE 202	Organic Chemistry II	5
TOTAL CREDITS			26

### REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Requirement	HES/MAT/SWK/PSY 351	Statistics	3
Program Requirement	BIO 352	Microbiology	4
Program Requirement	BIO 263	Human Anat. And Physiol.	4
Program Requirement	BIO 281 or 362	Env. Science or Prin. Ecology	4
Program Requirement	BIO 206 or 321	Genes and Speciation or Parasitology	4
Program Requirement	BIO 330 or 345	Plant Organismal Biology or Cell/Mole.	4
TOTAL CREDITS			23



## BACHELOR'S DEGREE PROGRAM INFORMATION

Institution	<b>University of Detroit Mercy</b>
Degree/Program	<b>Bachelor of Science in Biology</b>
Credits Required	<b>120</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mitransfer.org](http://www.mitransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIO 1200, BIO 1210	General Biology I/Lab	5
Organismal Biology	BIO 1220, BIO 1230	General Biology II/Lab	5
General Chemistry I	CHM 1070/CHM 1100	General Chemistry I/Lab	4
General Chemistry II	CHM 1080/CHM 1120	General Chemistry II/Lab	4
Organic Chemistry I	CHM 2270/CHM 2250	Organic Chemistry I/Lab	4
Organic Chemistry II	CHM 2290/CHM 2260	Organic Chemistry II/Lab	4

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Program Requirement	PHY 1300, PHY 1310	Physics I/Lab	4
Program Requirement	PHY 1320, PHY 1330	Physics II/Lab	4
Program Requirement	MTH 1400	Elementary Functions	3
Program Requirement	BIO 2900 or STA 2250	Biostatistics or Statistics	3



## BACHELOR'S DEGREE PROGRAM INFORMATION

Institution	<b>University of Michigan-Dearborn</b>
Degree/Program	<b>BS/Biology</b>
Credits Required	<b>120</b>

## MICHIGAN TRANSFER AGREEMENT (MTA)

The MiTransfer Pathways builds on the Michigan Transfer Agreement (MTA). The MTA allows transfer students to select designated courses to complete a minimum of 30 credit hours fulfilling MTA distribution requirements. Students following MiTransfer Pathway agreements should complete the MTA in accordance with the sending institutions' course designations and consider whether any recommended MiTransfer Pathways major-specific courses will "double count" to fulfill MTA distribution requirements in planning their transfer. More information about the MTA is available at [www.mittransfer.org](http://www.mittransfer.org).

The MTA Mathematics distribution area allows students to complete one of three math pathways. The Biology MiTransfer Pathways faculty recommended that students complete a course in the Calculus pathway.

## MiTRANSFER PATHWAYS COURSES

These courses are commonly agreed upon for transfer in this program among participating institutions.

Pathway Course	Subject/ Course Number	Course Title	Credit Hrs
Cell/Molecular Biology	BIOLOGY 140/140L	Intro Molec & Cellular Biology	4
Organismal Biology	BIOLOGY 130/130L	Intro Org & Environ Biology	4
General Chemistry I	CHEMISTRY 134/134L	General Chemistry 1A	4
General Chemistry II	CHEMISTRY 136/136L	General Chemistry IIA	4
Organic Chemistry I	CHEMISTRY 225	Organic Chemistry I	3
Organic Chemistry II	CHEMISTRY 226	Organic Chemistry II	3

## REMAINING DEGREE REQUIREMENTS

These are required, recommended, or optional courses that transfer students could complete at a community college to fulfill degree requirements at the university/ receiving institution. Add additional lines as necessary.

General Education or Program Requirement	Subject/ Course Number	Course Title	Credit Hrs
Foreign Language	Foreign Language 101	Ancient Greek, Arabic, Armenian, French, German, Latin, Spanish, Chinese	4
Foreign Language	Foreign Language 102	Ancient Greek, Arabic, Armenian, French, German, Latin, Spanish, Chinese	4
Pre-Major	Physics 125/125L or Physics 150/150L	Introductory Physics I or General Physics I	4
Pre-Major	Physics 126/126L or Physics 151/151L	Introductory Physics II or General Physics II	4
Pre-Major	Math 116	Calculus II	4

## ADVISING NOTES

Please indicate any advising notes for students following this transfer pathway at your institution. Only one Organic Chemistry is required.



APPENDIX C:  
MiTransfer Biology Pathway Course Equivalencies

Find live versions of each of these reports in the secure user area at [www.mittransfer.org](http://www.mittransfer.org).













APPENDIX D:  
MiTransfer Biology Pathway Course Equivalency Exceptions

Find Excel versions of Appendix D at [www.mittransfer.org](http://www.mittransfer.org).



# BIOLOGY

<b>Course</b>	<b>College/University</b>	<b>Community College</b>	<b>Explanation</b>
Biology I (Cell, Molecular)	EASTERN MICHIGAN UNIVERSITY	GOGEBIC COMMUNITY COLLEGE	Syllabus under review
Biology I (Cell, Molecular)	EASTERN MICHIGAN UNIVERSITY	MUSKEGON COMMUNITY COLLEGE	Syllabus under review
Biology I (Cell, Molecular)	EASTERN MICHIGAN UNIVERSITY	ST. CLAIR COUNTY COMMUNITY COLLEGE	Syllabus under review
Biology I (Cell, Molecular)	EASTERN MICHIGAN UNIVERSITY	WAYNE COUNTY COMMUNITY COLLEGE DISTRICT	No syllabus to review; Accepted to satisfy major requirements
Biology I (Cell, Molecular)	SAGINAW VALLEY STATE UNIVERSITY	MUSKEGON COMMUNITY COLLEGE	The labs are not in alignment for learning outcomes or objectives.
Biology II (Organismal)	ADRIAN COLLEGE	WAYNE COUNTY COMMUNITY COLLEGE DISTRICT	Syllabus under review
Biology II (Organismal)	ALBION COLLEGE	WAYNE COUNTY COMMUNITY COLLEGE DISTRICT	Syllabus under review
Biology II (Organismal)	CORNERSTONE UNIVERSITY	ALPENA COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	BAY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	DELTA COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	GLEN OAKS COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	GOGEBIC COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	GRAND RAPIDS COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	HENRY FORD COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	JACKSON COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	KALAMAZOO VALLEY COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	KELLOGG COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	KIRTLAND COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.

Biology II (Organismal)	CORNERSTONE UNIVERSITY	LAKE MICHIGAN COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	LANSING COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	MACOMB COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	MID MICHIGAN COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	MONROE COUNTY COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	MONTCALM COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	MOTT COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	MUSKEGON COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	NORTH CENTRAL MICHIGAN COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	NORTHWESTERN MICHIGAN COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	OAKLAND COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	SCHOOLCRAFT COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	SOUTHWESTERN MICHIGAN COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	ST. CLAIR COUNTY COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	WASHTENAW COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	WAYNE COUNTY COMMUNITY COLLEGE DISTRICT	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	CORNERSTONE UNIVERSITY	WEST SHORE COMMUNITY COLLEGE	No course. Community college course transfers in as elective credit.
Biology II (Organismal)	EASTERN MICHIGAN UNIVERSITY	GOGEBIC COMMUNITY COLLEGE	Syllabus under review
Biology II (Organismal)	EASTERN MICHIGAN UNIVERSITY	ST. CLAIR COUNTY COMMUNITY COLLEGE	Syllabus under review
Biology II (Organismal)	EASTERN MICHIGAN UNIVERSITY	WAYNE COUNTY COMMUNITY COLLEGE DISTRICT	No syllabus to review; Accepted to satisfy major requirements

Biology II (Organismal)	EASTERN MICHIGAN UNIVERSITY	WEST SHORE COMMUNITY COLLEGE	Syllabus under review
Biology II (Organismal)	MICHIGAN TECHNOLOGICAL UNIVERSITY	WAYNE COUNTY COMMUNITY COLLEGE DISTRICT	WCCCD - BIO 165, Botany, will transfer as MTU - BL 2160, Botany, instead of Organismal Biology
Biology II (Organismal)	ROCHESTER UNIVERSITY	WAYNE COUNTY COMMUNITY COLLEGE DISTRICT	WCCCD - BIO 165, Botany, will transfer as Rochester University - BIO 2224
Biology II (Organismal)	SAGINAW VALLEY STATE UNIVERSITY	MUSKEGON COMMUNITY COLLEGE	The labs are not in alignment for learning outcomes or objectives.
Biology II (Organismal)	SIENA HEIGHTS UNIVERSITY	ALPENA COMMUNITY COLLEGE	BIO162 is not in alignment with BIO 241 course
Biology II (Organismal)	SIENA HEIGHTS UNIVERSITY	BAY COLLEGE	BIOL 110 is not in alignment with BIO 241 course
Biology II (Organismal)	SIENA HEIGHTS UNIVERSITY	GRAND RAPIDS COMMUNITY COLLEGE	BI 152 course is not in alignment with BIO 241 course
Biology II (Organismal)	SIENA HEIGHTS UNIVERSITY	HENRY FORD COLLEGE	BIO 150 course is not in alignment with BIO 241 course
Biology II (Organismal)	SIENA HEIGHTS UNIVERSITY	KIRTLAND COMMUNITY COLLEGE	BIO11800 course is not in alignment with BIO 241 course
Biology II (Organismal)	SIENA HEIGHTS UNIVERSITY	LAKE MICHIGAN COLLEGE	BIO112 course is not in alignment with BIO 241 course
Biology II (Organismal)	SIENA HEIGHTS UNIVERSITY	LANSING COMMUNITY COLLEGE	BIO 128 course is not in alignment with BIO 241 course
Biology II (Organismal)	SIENA HEIGHTS UNIVERSITY	MID MICHIGAN COLLEGE	BIO112 course is not in alignment with BIO 241 course
Biology II (Organismal)	SIENA HEIGHTS UNIVERSITY	MONROE COUNTY COMMUNITY COLLEGE	BIOL 153 course is not in alignment with BIO 241 course
Biology II (Organismal)	SIENA HEIGHTS UNIVERSITY	MONTCALM COMMUNITY COLLEGE	BIO122 course is not in alignment with BIO 241 course
Biology II (Organismal)	SIENA HEIGHTS UNIVERSITY	OAKLAND COMMUNITY COLLEGE	BIO1560 course is not in alignment with BIO 241 course
Biology II (Organismal)	SIENA HEIGHTS UNIVERSITY	ST. CLAIR COUNTY COMMUNITY COLLEGE	BIO121 Course is not in alignment with BIO 241 course
Biology II (Organismal)	SIENA HEIGHTS UNIVERSITY	WEST SHORE COMMUNITY COLLEGE	BIO123 course is not in alignment with BIO241 course
Biology II (Organismal)	UNIVERSITY OF DETROIT MERCY	BAY COLLEGE	UDM course covers evolution and anatomy/physiology and Bay's course does not
Biology II (Organismal)	UNIVERSITY OF DETROIT MERCY	KIRTLAND COMMUNITY COLLEGE	UDM course covers evolution and anatomy/physiology and Kirtland's course does not
Organic Chemistry I	FERRIS STATE UNIVERSITY	GLEN OAKS COMMUNITY COLLEGE	CHEM 210 at Glen Oaks is equivalent to our CHEM 214 and is not equivalent to our CHEM 321.

Organic Chemistry II	FERRIS STATE UNIVERSITY	GLEN OAKS COMMUNITY COLLEGE	CHEM 211 has been reviewed and is not a direct equivalency to CHEM 322 at Ferris. Glen Oaks does not have an equivalency to the CHEM 321 course at Ferris, which is the class prior to this one in the sequencing of courses.
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