BIOLOGY MAJOR FOR SECONDARY TEACHING

Updated October 2019

The **major in Biology for Secondary teachers** (State code: DA) consists of a minimum of 30 credits.

Teacher candidates for certification in Biology at the Secondary level must pass the Michigan Test for Teacher Certification (MTTC) in Biology (Test #017). MTTC content exams should not be taken until 90% of course work in the subject area has been completed. A study guide is available at the MTTC website: (http://www.mttc.nesinc.com/PDFs/MI_field017_SG.pdf).

The courses below meet State standards and have been selected so that teacher candidates will be well prepared for the test. Knowledge must be demonstrated in the following categories in order to successfully pass the MTTC subject area exam:

Subarea	Approximate Percentage of Questions on Test
1. Foundations of Scientific Inquiry	19%
2. Cellular Function	15%
3. Heredity and Evolutionary Changes	22%
4. Organization of Living Things	22%
5. Ecological Systems	22%

The following chart is intended to provide you a guide for scheduling your semesters and for keeping track of your grade point average.

PLEASE REFER TO YOUR DEGREE EVALUATION IN KNOWHOPE PLUS IN ADDITION TO THIS DOCUMENT TO DETERMINE FULFILLMENT OF COURSE REQUIREMENTS

CORE COURSES IN BIOLOGY (8 credits)

SUBJECT/ COURSE	TITLE	CR. HRS.	SEMESTER TAKEN	SUBSTITUTION
BIO 105	Introduction to Biology I	3		
BIO 106	General Biology II	3		
BIO 107 and BIO 108 Or BIO 207* Or BIO 208*	Introduction to Biology I Lab and General Biology II Lab Or Honors Lab in Cells and Genetics I Or Honors Lab in Cells and Genetics II	1 1 2 2		

*By invited application only

Required Cognate Support, not totaled in major credits (12 credits)

SUBJECT/ COURSE	TITLE	CR. HRS.	SEMESTER TAKEN	SUBSTITUTION
CHEM 125	General Chemistry I	3		
CHEM 126	General Chemistry II	3		
CHEM 127	Laboratory of General Chemistry I	1		
CHEM 128	Laboratory *of* General Chemistry II	1		
One semester of Mathematics (4 credits)				
MATH ____		4		

ADVANCED COURSES IN BIOLOGY (22 additional credits selected from the following advanced courses in Biology. One of these courses MUST be from the list of flagged *Biodiversity courses.)

SUBJECT/ COURSE	TITLE	CR. HRS.	SEMESTER TAKEN	SUBSTITUTION
BIO 221	Human Physiology – **Strongly Recommended**	4		
BIO 301	General Microbiology*	4		
BIO 315	Topics in Ecology	4		
BIO 320	Plant Physiology	4		
BIO 330	Marine Biology and Biophysics	4		
BIO 332	Comparative Anatomy of Vertebrates*	4		
BIO 340	Topics in Plant Biology	4		
BIO 343	Vascular Plant Systematics *	4		
BIO 348	Topics in Cell Biology-Lecture	3		
BIO 349	Topics in Cell Biology-Lab	1		
BIO 355	Developmental Biology	4		
BIO 356	Genetics	3		
BIO 357	Genetics lab	1		
BIO 366	Molecular Biology	4		
BIO 370	Animal Behavior	4		
BIO 374	Biology of Insects*	4		
BIO 380	Field Studies in Biology*	1-4		
BIO 390	Independent Study of Biology	1-3		
BIO 421	Evolutionary Biology	4		
BIO 422	Invertebrate Zoology*	4		
BIO 432	Vertebrate Zoology*	4		
BIO 442	Topics in Physiology	4		
BIO 490	Independent Research	1-2		
BIO 495	Advanced Topics in Biology	1-4		

A SCIENCE METHODS COURSE - REQUIRED (4 credits)

(The Science methods course is considered pedagogy and will be counted with your education courses for certification.)

SUBJECT/ COURSE	TITLE	CR. HRS.	SEMESTER TAKEN	SUBSTITUTION
EDUC 331	Teaching of Science in the Secondary School (offered Fall Semester only)	3		
EDUC 332	Teaching of Science in the Secondary School Field Placement (offered Fall Semester only)	1		

This MUST be completed prior to the student teaching semester!