

**Aquatic Sciences Option**  
**Coursework Requirements - 2009-2011 Catalog**  
**34 Total Credits**

**Required Courses**

A ECL 418	Stream Ecology	3 cr
A ECL 486	Aquatic Ecology	3 cr
A ECL 486L	Aquatic Ecology Laboratory	1 cr
MATH 160, 165, or 181	Calculus Elective	4 cr
NREM 407	Watershed Management	4 cr

**15 credits**

**Restricted Electives**

A ECL 321	Fish Biology	3 cr
A ECL 366	Natural History of Iowa Vertebrates	3 cr
A ECL 401	Introductory Aquatic Animal Health and Medicine	1 cr
A ECL/ENT 425	Aquatic Insects	3 cr
A ECL 440	Fishery Management	3 cr
A ECL 441	Fisheries Techniques	3 cr
A ECL 442	Aquaculture	3 cr
A ECL 515	Ecology of Freshwater Invertebrates	3 cr
A ECL 520	Fisheries Science	3 cr
BIOL 313/GEN 320	Principles of Genetics	3 cr
BIOL 472	Community Ecology	3 cr
BIOL 474	Plant Ecology	3 cr
BIOL 487	Aquatic and Wetland Microbial Ecology	3 cr
BIOL 488	Identification of Aquatic Organisms	1 cr
CHEM 211	Quantitative and Environmental Analysis	2 cr
CHEM 211L	Quantitative and Environmental Analysis Laboratory	2 cr
ENSCI 381	Environmental Systems	3 cr
ENSCI 402	Watershed Hydrology and Surficial Processes	4 cr
ENT 370	Insect Biology	3 cr
FOR 453	Forest Resource Policy and Administration	3 cr
GEOL 101*	Environmental Geology: Earth in Crisis	3 cr
GEOL 108*	Introduction to Oceanography	3 cr
NREM 385	Natural Resource Policy	3 cr
NREM 460	Controversies in Natural Resource Management	3 cr
NREM 532	Human Dimensions of Natural Resource Management	3 cr
NREM 535/A ECL 535I	Restoration Ecology	3 cr
STAT 401	Statistical Methods for Research Workers	4 cr
STAT 402	Statistical Design and the Analysis of Experiments	3 cr
TSM 324	Soil and Water Conservation Management	3 cr
TSM 424	Impacts of Agriculture on Water Quality	2 cr

**A minimum of 19 credits\***

\*Only one of GEOL 101 and 108 may be used to meet this option requirement.

## Suggested Sequence of Courses

### Aquatic Sciences Option\*

#### Freshman Year

BIOL 211	Principles of Biology	3	BIOL 212	Principles of Biology	3
BIOL 211L	Prin. of Biology Lab.	1	BIOL 212L	Prin. of Biology Lab.	1
NREM 110	Orientation in NREM	R	NREM 120	Intro. Renew. Resources	3
	Ethics/Humanities/Social Science Elective	3	ENGL 150	Critical Thinking & Comm	3
MATH 140	College Algebra**	3	MATH 142	Trig. & Analytic Geom.**	3
CHEM 163	General Chemistry	4	Stat 101/104	Statistics	3-4
CHEM 163L	General Chemistry Lab.	<u>1</u>	LIB 160	Library Instruction	<u>.5</u>
		<u>15</u>			<u>16.5-17.5</u>

#### Sophomore Year

A ECL 365	Vertebrate Biology	4	Chem 231	Elem. Organic Chem.	3
NREM 211	Careers in Nat. Res.	1	Chem 231L	Lab. Organic Chem.	1
A ECL 312	Ecology	4	Sp Cm 212	Fund. of Public Speaking	3
MATH	Calculus Elective	4		Free Elective/restricted elective	6
ENGL 250	W/O/V/E Communications	<u>3</u>		Ethics/Humanities/Social Science Elective	<u>3</u>
		<u>16</u>			<u>16</u>

#### Junior Year\*\*\*

Phys 106	Physics	4	Communications Elective		3
A ECL 486	Aquatic Ecology	3	Restricted Electives		6
A ECL 486L	Aquatic Ecology Lab	1	Ethics/Humanities/Social Science Elective		3
	Ethics/Humanities/Social Science Elective	6	Free Elective		<u>3</u>
	Restricted Elective	<u>3</u>			<u>15</u>
		<u>17</u>			

#### Senior Year\*\*\*

Restricted Electives		7	NREM 407 Watershed Management		4
A ECL 418	Stream Ecology	3	Restricted Elective		3
	Communications Elective	3	Free Elective(s)		<u>10</u>
	Free Elective	<u>3</u>			<u>17</u>
		<u>16</u>			

\* To complete degree program in 4 years students must maintain an average of 16 credits per semester.

\*\* Initial math course is determined on the basis of high school math and placement test scores. A non-credit math course (Math 10) may be required at additional costs.

\*\*\* In scheduling coursework, students should pay particular attention to courses with limited offerings (e.g., offered only on alternate years) and to course sequences (i.e., where a course serves as a prerequisite for another course).