399. Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 40 credits. A student may earn a maximum of 40 credits in all enrollments for this course.
R: Open only to doctoral students in School of Music. Approval of school.
QA: MUS 999

NATURAL SCIENCE NSC
College of Natural Science

201. Science Problem Solving Seminar I
Fall, 2-2-0
P: Drew Section of MTH 0823 or MTH 115 or MTH 135 concurrently. R: Approval of college.
Problem solving principles and strategies used in the disciplines of science and mathematics. Activities reflecting the types of problems encountered.
QA: NSC 201

202. Science Problem Solving Seminar II
Spring, 2-2-0
P: NSC 201. R: Approval of college.
Continuation of NSC 201.
QA: NSC 202

203. Drew Laboratory Directed Studies
Fall, Spring, Summer. 1 to 2 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
P: NSC 202. R: Open only to Drew Laboratory students.
Using topics related to a faculty member's ongoing research, students explore the relationship between science and technology and social issues.
QA: NSC 203

390. Special Problems
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
R: Approval of department.
Faculty directed individual study of an interdisciplinary problem.

401. Science Laboratories for Secondary Schools
Fall, 4(2-6)
R: Open only to seniors in the College of Natural Science with a teacher certification option.
Laboratory equipment, supplies, demonstrations, exercises, and safety. Care of live organisms. Disposal of biological and chemical waste. Field trips required.

490. Special Problems
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
R: Approval of department.
Faculty directed individualized study of an interdisciplinary problem.
QA: BS 490, NS 300

491. Selected Topics
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
R: Approval of department.
Selected interdisciplinary topics not normally covered in other courses.
QA: BS 405, PHS 405

499. Research
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
R: Open only to juniors and seniors in the College of Natural Science with a teacher certification option. Research in faculty laboratories. Oral and written presentations.

800. Problems in Biological or Physical Science for Teachers
Fall, Spring, Summer. 2 to 8 credits. A student may earn a maximum of 8 credits in all enrollments for this course.
R: Teacher Certification required. Approval of college. Supervised study of problems in biological or physical science.
QA: BS 800, PHS 890

802. Essentials of Electron Microscopy
Fall, Spring, 2(2-0)
P: NSC 802. R: Approval of department.
Use of transmission microscopy and selected electron optical instruments. Preparation techniques for specimens, photographic and dark room use, and interpretation of images.
QA: NSC 802

810. Transmission Electron Microscopy Laboratory
Fall, Spring, Summer. 3(1-4)
P: NSC 802. R: Approval of department.
Use of transmission microscopy and related equipment. Preparation techniques for specimens, photographic and darkroom use, and interpretation of micrographs.
QA: NSC 810

Fall, Spring, Summer. 3(1-4)
P: NSC 802 or concurrently. Use of scanning electron microscopy and energy dispersive x-ray microanalysis. Machine variables, artifacts, quantitative analysis, specimen preparation, darkroom procedures.
QA: NSC 820, NSC 820, NSC 840

825. Special Problems in Electron Microscopy
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 40 credits in all enrollments for this course.
P: NSC 802, NSC 810 or NSC 820. Use of electron microscopy techniques for selected research topics.
QA: NSC 802, NSC 810 or NSC 820 QA: NSC 801

850. Cell and Molecular Biology
Summer. 2 credits.
P: Secondary certification in biology, 3 years teaching experience; C: NSC 850 R: Approval of college.
Intensive laboratory study of cell biology, function of cells, protein structure and function, cell physiology, metabolic energy and transmission of genetic information.
QA: NSC 850

851. Cell and Molecular Biology Laboratory
Summer. 3 credits.
P: Secondary certification in biology, 3 years teaching experience; C: NSC 850 R: Approval of college.
Generation of laboratory exercises appropriate for secondary students.
QA: NSC 851

852. Interdisciplinary Seminar in Biological Science
Fall, Spring, Summer. 1 credit.
P: Secondary certification in biology, 3 years teaching experience; R: Approval of college.
Interrelationships of biological science and technology. The role of society in regulation of science and technology.
QA: NSC 852

855. Environmental and Behavioral Biology
Summer. 2 credits. Given only at W.K. Kellogg Biological Station.
P: Secondary certification in biology, 3 years teaching experience; C: NSC 855 R: Approval of college.
Biological and chemical aspects of lakes, streams, forest ecosystems, and microbial ecosystems.
QA: NSC 855

856. Environmental and Behavioral Biology Laboratory
Summer. 3 credits. Given only at W.K. Kellogg Biological Station.
P: Secondary certification in biology, 3 years teaching experience; C: NSC 856 R: Approval of college.
Laboratory and field investigations of lake, stream, and forest ecosystems.
QA: NSC 856

860. Problem Solving Techniques in Physical Science
Summer. 3 credits.
P: NSC 861, NSC 862, NSC 863. R: Secondary certification in chemistry or physics or earth science, 3 years teaching experience. Approval of college.
Measurement and analysis of chemical, physical, and geological phenomena.

861. Chemistry for Teachers
Summer. 2 credits.
P: Secondary certification in chemistry or physics or earth science or physical science, 3 years teaching experience.
R: Approval of college.
Intensive lecture and laboratory study of basic chemistry from a modern viewpoint.

862. Physics for Teachers
Summer. 2 credits.
P: Secondary certification in chemistry or physics or earth science or physical science, 3 years teaching experience.
R: Approval of college.
Intensive lecture and laboratory study of basic physics from a modern viewpoint.

863. Earth Science for Teachers
Summer. 2 credits.
P: Secondary certification in chemistry or physics or earth science or physical science, 3 years teaching experience.
R: Approval of college.
Intensive lecture and laboratory study of basic earth sciences from a modern viewpoint.

864. Interdisciplinary Seminar in Physical Science
Summer. 2 credits.
P: NSC 860. R: Approval of college.
Interrelationships of the physical sciences. The role of society in regulation of science to technology transfer.

889. Research for Inservice Teachers
Fall, Spring, Summer. 1 to 8 credits. A student may earn a maximum of 10 credits in all enrollments for this course.
R: Open only to inservice K-12 teachers with baccalaureate degrees.
Research in faculty laboratories. Oral and written presentations.

899. Master's Thesis Research
Fall, Spring, Summer. 2 to 8 credits. A student may earn a maximum of 10 credits in all enrollments for this course.
R: Open only to Master's candidates in College of Natural Science. Approval of college.
QA: BS 899, PHS 899

901. Frontiers in Biological Science
Fall, Spring, 1 credit. A student may earn a maximum of 36 credits in all enrollments for this course.
P: Secondary certification in chemistry or physics or earth science or physical science or biology, R: 3 years teaching experience. Approval of college.
Weekend workshops with research faculty exploring background and latest findings in their areas of research.
QA: NSC 901

902. Frontiers in Physical Science
Fall, Spring, 1 credit. A student may earn a maximum of 40 credits in all enrollments for this course.
P: Secondary certification in chemistry or physics or earth science or physical science or biology, R: 3 years teaching experience. Approval of college.
Weekend workshops with research faculty exploring background and latest findings in their areas of research.