Restriction(s):
watershed will serve as the primary case study.
management practices, and educational programs. The Rouge River
management models, drinking water and wastewater systems, best
history, water quality analysis, biological diversity, laws and regulations,
and the role of wastewater dumping on the watershed.

ESCI 525  Soil in the Environment   3 Credit Hours
The study of soil in the environment, including its formation,
classification, physical attributes and engineering properties with an
emphasis on soil-water statics and dynamics, chemical attributes and
processes. Students are expected to have background knowledge
of physical geology. The course will include field trips and field work,
including the collection of soil samples from the Universities natural area.
The course will also include a laboratory component in which students
will perform a variety of test, e.g. bulk density, engineering properties on
the soil samples collected. the course will typically be team taught. (S,
AY)
Prerequisite(s): GEOL 118
Restriction(s):
Can enroll if Level is Rackham or Graduate
Can enroll if College is Education, Health, and Human Services or
Business or Engineering and Computer Science or Arts, Sciences, and
Letters

ESCI 572  Environmental Communications   3 Credit Hours
Preparation and presentation of both oral and written technical abstracts
and reports, including environmental newsletters, thesis, and media
releases. Professional scientists must be able to effectively communicate
ideas and concepts to other scientists and to the general public. This
course will provide the foundations in learning how to communicate ideas
effectively and succinctly. (F, YR)
Restriction(s):
Can enroll if Class is Senior or Graduate
Can enroll if College is Arts, Sciences, and Letters

ESCI 574  Watershed Analysis   3 Credit Hours
An interdisciplinary study of watersheds, the most commonly used bio-
regional unit. The course integrates the analysis of many factors which
contribute to the character of watersheds, including bedrock and surficial
geology, surface and groundwater hydrology, social history, land use
history, water quality analysis, biological diversity, laws and regulations,
management models, drinking water and wastewater systems, best
management practices, and educational programs. The Rouge River
watershed will serve as the primary case study.
Restriction(s):
Can enroll if Class is Graduate

ESCI 504  Field Studies in Env Science   2 Credit Hours
A systematic analysis of the environment. This course will focus on the
analysis of the Rouge River Watershed as an ecological unit. The student
will make intensive analyses of the river water and the surrounding land
surface at selected sites. The results will provide a composite of the
water quality and land use of the various tributaries. Emphasis will be
placed on proper sampling and testing techniques, field and lab safety
procedures, aquatic chemistry, biological organisms as indicators of
pollution, and the role of wastewater dumping on the watershed.

ESCI 595  Topics in Environmental Science   3 Credit Hours
Problems or readings on specific topics or subjects in environmental
science. (YR)
Restriction(s):
Can enroll if Class is Senior or Graduate
Can enroll if College is Arts, Sciences, and Letters

ESCI 596G  Topics in Environmental Sci   3 Credit Hours
Problems or readings on specific topics or subjects in environmental
science. (YR)
Restriction(s):
Can enroll if Class is Senior or Graduate
Can enroll if College is Arts, Sciences, and Letters

ESCI 595G  Topics in Environmental Sci   3 Credit Hours
Problems or readings on specific topics or subjects in environmental
science. (YR)
Restriction(s):
Can enroll if Class is Senior or Graduate
Can enroll if College is Arts, Sciences, and Letters

ESCI 597  Off-Campus Independent Study   1 to 3 Credit Hours
Provides opportunity for qualified graduate students in the MSES
program to pursue independent research under the direction of a
graduate faculty member off campus. A written proposal describing the
project (including the nature of the project itself, dates, where the project
will be done and the faculty member supervising the project) must be
approved by the MSES program director/committee before the student
can register for the course. Project must be appropriate to the student’s
chosen track. It must be designed to produce a scholarly paper, papers, or
other evidence(s) that reflect significant results from the course (F, W, S).
Restriction(s):
Can enroll if Class is Graduate

ESCI 599  On-Campus Independent Study   1 to 3 Credit Hours
Provides opportunity for qualified graduate students in the MSES
program to pursue independent research under the direction of a
graduate faculty member. A written proposal describing the project
(including the nature of the project itself, dates, where the project
will be done and the faculty member supervising the project) must be
submitted to the Program Director/committee for approval before the student
can register for the course. Project must be appropriate to the student’s
chosen track. It must be designed to produce a scholarly paper, papers, or
other evidence(s) that reflect significant results from the course. (F, W, S).
Restriction(s):
Can enroll if Class is Graduate

ESCI 698  MSES Master’s Project   3 Credit Hours
Intended for students who present a plan for a project using methods of
intellectual exploration and analysis. Possible projects include gathering
data through laboratory or field based studies, using interviews and
survey instruments to gauge human responses. They should involve
creative representations, writing, and other forms of interdisciplinary
analysis. To be carried out under the general supervision of a member of
the graduate faculty in Natural Sciences. Project plan must be approved
by the MSES Program Director/committee before student registers for
this course. (F, W, S).
Restriction(s):
Can enroll if Class is Graduate

ESCI 585  Spatial Analysis and GIS   3 Credit Hours
Application of the principles of Spatial Analysis and the use of
Geographic Information Systems as a research tool in Environmental
Science. Emphasis will be placed on the use of commercially available
software including: ESRI’s ArcView GIS, Golden Software’s Surfer and
Adobe PhotoShop. Emphasis will also be placed on the use of the
Michigan spatial data warehouse program and the Michigan geographic
framework program for metadata specific to Michigan. (AY).
Restriction(s):
Can enroll if Class is Graduate

ESCI 595  Topics in Environment Sci   3 Credit Hours
Problems or readings on specific topics or subjects in environmental
science. (YR)
Restriction(s):
Can enroll if Class is Senior or Graduate
Can enroll if College is Arts, Sciences, and Letters

ESCI 595G  Topics in Environmental Sci   3 Credit Hours
Problems or readings on specific topics or subjects in environmental
science. (YR)
Restriction(s):
Can enroll if Class is Senior or Graduate
Can enroll if College is Arts, Sciences, and Letters

ESCI 597  Off-Campus Independent Study   1 to 3 Credit Hours
Provides opportunity for qualified graduate students in the MSES
program to pursue independent research under the direction of a
graduate faculty member off campus. A written proposal describing the
project (including the nature of the project itself, dates, where the project
will be done and the faculty member supervising the project) must be
approved by the MSES program director/committee before the student
can register for the course. Project must be appropriate to the student’s
chosen track. It must be designed to produce a scholarly paper, papers, or
other evidence(s) that reflect significant results from the course (F, W, S).
Restriction(s):
Can enroll if Class is Graduate

ESCI 599  On-Campus Independent Study   1 to 3 Credit Hours
Provides opportunity for qualified graduate students in the MSES
program to pursue independent research under the direction of a
graduate faculty member. A written proposal describing the project
(including the nature of the project itself, dates, where the project
will be done and the faculty member supervising the project) must be
submitted to the Program Director/committee for approval before the student
can register for the course. Project must be appropriate to the student’s
chosen track. It must be designed to produce a scholarly paper, papers, or
other evidence(s) that reflect significant results from the course. (F, W, S).
Restriction(s):
Can enroll if Class is Graduate

ESCI 698  MSES Master’s Project   3 Credit Hours
Intended for students who present a plan for a project using methods of
intellectual exploration and analysis. Possible projects include gathering
data through laboratory or field based studies, using interviews and
survey instruments to gauge human responses. They should involve
creative representations, writing, and other forms of interdisciplinary
analysis. To be carried out under the general supervision of a member of
the graduate faculty in Natural Sciences. Project plan must be approved
by the MSES Program Director/committee before student registers for
this course. (F, W, S).
Restriction(s):
Can enroll if Class is Graduate
ESCI 699    MSES Master’s Thesis   1 to 6 Credit Hours
MSES students electing this thesis option in the last stage of the program will work under the general supervision of a member of the graduate faculty in Natural Sciences, but will plan and carry out the work independently. Prospectus and thesis plan must be approved by the MSES Program Director/committee before student registers for this course. (F, W, S).

Restriction(s):
Can enroll if Class is Graduate

* An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally