

Ph.D. in Earth Sciences

48 total graduate credit hours are required. The following course work towards the 48 total graduate credits are required with exception for students with M.S.

Ph.D. students coming to the program with a M.S. may receive credit for up to 30 hours. An additional 18 credit hours are required. At least 12 of those 18 credit hours must be in graduate coursework, with the balance made up by dissertation credits. Incoming students already holding an M.S. degree must complete the Foundations 9-credit block at Syracuse University, minus the Numerical Skills requirement if they have prior equivalent coursework. Prior coursework from the M.S. degree may also count toward the Graduate Scope of Earth Sciences 9-credit block requirement.

Ph.D. students coming to the program without a M.S. must take at least 36 credits in graduate course work. The balance of the 48 credits will be made up in dissertation credits.

Most students can satisfy the requirements within four years after completing the master's degree. The Ph.D. candidate must pass an oral qualifying examination and must give an oral defense of the dissertation.

Foundations (9 credits)

- EAR 600 Foundations of Geosciences (1 credit)
- EAR 600 Professional Development Seminar (1 credit)
- EAR 616 Practicum on Science Communication (2 credits)
- 1 Numerical Skills lecture course (3 credits) - choice of:
 - EAR 602 Methods in the Geosciences
 - EAR 600 Statistics in Earth and Environmental Science
 - CEE/EAR 609: Data Science for Environmental Systems Research
 - Other numerical/coding course approved by the graduate advisory committee
- Discipline-Specific Seminar Course (1 credit, repeated once)
 - EAR 600 PaleoX - Ancient Climates and Ecosystems
 - EAR 666 The SESSion - Solid Earth Seminar Series
 - EAR 612 HydroReads - Water-Energy Seminar

Graduate Scope of Earth Sciences (9 credits)

- One course in cross cutting the Earth System Sciences: (3 credits)
 - EAR 610 GIS in the Earth Sciences
 - EAR 617 Geochemistry
 - EAR 622 Applications of Electron Probe Microanalysis
 - EAR 600 Geochronology
 - EAR 600 Stable Isotopes
- Two courses chosen from 2 of the 3 department disciplinary areas: (6-7 credits)

(Cross cutting courses only count once)

Solid Earth/Geodynamics

- EAR 631 Plate Tectonics
- EAR 618 Petrology
- EAR 611 Environmental Geophysics
- EAR 603 Geomorphology
- EAR 608 Sedimentary Basin Analysis
- EAR 622 Applications of Electron Probe Microanalysis
- Other relevant course approved by the graduate advisory committee

Ancient Climates and Ecosystems

- EAR 615 Climate Dynamics
- EAR 600 Earth History of Global Oceans
- EAR 600 Environmental Reconstruction
- EAR 614 The Holocene
- EAR 629 Topics in Paleobiology
- EAR 600 Earth's Organic Processes
- EAR 607 Climate Change and Human Origins
- EAR 655 Geochemical Transitions in the History of Earth and Life
- Other relevant course approved by the graduate advisory committee

Water Science

- EAR 601 Hydrogeology
- EAR 603 Physical Hydrology
- EAR 619 Environmental Aqueous Geochemistry
- EAR 620 Contaminant Hydrology
- EAR 665 Groundwater Modeling
- Other relevant course approved by the graduate advisory committee

M.S. in Earth Sciences

30 credits are required. 6 of these are in thesis credit and 24 credits are for graduate course work. M.S. candidates must pass an oral defense of their thesis.

The following coursework towards the 24 total graduate credits is required:

Foundations (9 credits)

- EAR 600 Foundations of Geosciences (1 credit)
- EAR 600 Professional Development Seminar (1 credit)
- EAR 616 Practicum on Science Communication (2 credits)
- 1 Numerical Skills lecture course (3 credits) - choice of:
 - EAR 602 Methods in the Geosciences
 - EAR 600 Statistics in Earth and Environmental Science
 - CEE/EAR 609: Data Science for Environmental Systems Research
 - Other numerical/coding course approved by the graduate advisory committee
- Discipline-Specific Seminar Course (1 credit, repeated once)
 - EAR 600 PaleoX - Ancient Climates and Ecosystems
 - EAR 666 The SESSion - Solid Earth Seminar Series
 - EAR 612 HydroReads - Water-Energy Seminar

Graduate Scope of Earth Sciences (9 credits)

- One course in cross cutting the Earth System Sciences: (3 credits)
 - EAR 610 GIS in the Earth Sciences
 - EAR 617 Geochemistry
 - EAR 622 Applications of Electron Probe Microanalysis
 - EAR 600 Geochronology
 - EAR 600 Stable Isotopes
- Two courses chosen from 2 of the 3 department disciplinary areas: (6-7 credits)
(Cross cutting courses only count once)

Solid Earth/Geodynamics

- EAR 631 Plate Tectonics
- EAR 618 Petrology
- EAR 611 Environmental Geophysics
- EAR 603 Geomorphology
- EAR 608 Sedimentary Basin Analysis
- EAR 622 Applications of Electron Probe Microanalysis
- Other relevant course approved by the graduate advisory committee

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- EAR 615 Climate Dynamics
- EAR 600 Earth History of Global Oceans
- EAR 600 Environmental Reconstruction
- EAR 614 The Holocene
- EAR 629 Topics in Paleobiology
- EAR 600 Earth's Organic Processes
- EAR 607 Climate Change and Human Origins
- EAR 655 Geochemical Transitions in the History of Earth and Life
- Other relevant course approved by the graduate advisory committee

Water Science

- EAR 601 Hydrogeology (EAR 601)
- EAR 603 Physical Hydrology (EAR 603)
- EAR 619 Environmental Aqueous Geochemistry
- EAR 620 Contaminant Hydrology
- EAR 665 Groundwater Modeling
- Other relevant course approved by the graduate advisory committee

M.A. in Earth Sciences

30 credits are required. The student is required to pass a comprehensive written examination, but no thesis is required.

The following coursework towards the 30 total graduate credits is required:

Foundations (9 credits)

- EAR 600 Foundations of Geosciences (1 credit)
- EAR 600 Professional Development Seminar (1 credit)
- EAR 616 Practicum on Science Communication (2 credits)
- 1 Numerical Skills lecture course (3 credits) - choice of:
 - EAR 602 Methods in the Geosciences
 - EAR 600 Statistics in Earth and Environmental Science
 - CEE/EAR 609: Data Science for Environmental Systems Research
 - Other numerical/coding course approved by the graduate advisory committee
- Discipline-Specific Seminar Course (1 credit, repeated once)
 - EAR 600 PaleoX - Ancient Climates and Ecosystems
 - EAR 666 The SESSion - Solid Earth Seminar Series
 - EAR 612 HydroReads - Water-Energy Seminar

Graduate Scope of Earth Sciences (9 credits)

- One course in cross cutting the Earth System Sciences: (3 credits)
 - EAR 610 GIS in the Earth Sciences
 - EAR 617 Geochemistry
 - EAR 622 Applications of Electron Probe Microanalysis
 - EAR 600 Geochronology
 - EAR 600 Stable Isotopes
- Two courses chosen from 2 of the 3 department disciplinary areas: (6-7 credits)
(Cross cutting courses only count once)

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- EAR 611 Environmental Geophysics
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- Other relevant course approved by the graduate advisory committee