

## Emphasis - Hydrology & Comp Hydrosience

- [M.S. in Engineering Science](#)
- [Emphasis - Hydrology & Comp Hydrosience](#)

### **M.S. in Engineering Science** **Description**

The M.S. in engineering science is offered in a number of emphasis areas: aeroacoustics, chemical engineering, civil engineering, computational hydrosience, computer engineering, computer science, electrical engineering, electromagnetics, environmental engineering, geology, geological engineering, hydrology, mechanical engineering, material science and engineering, and telecommunications.

**Minimum Total Credit Hours: 30**

#### **Course Requirements**

A student must complete the requirements for an emphasis area. For most emphasis areas, the degree may be completed as a:

- Thesis option (30-hour program, to include 6 hours of thesis),
- Nonthesis option (30- hour program, to include a minimum of 3 hours of a design-oriented project course), or
- Coursework option (30-hour program, to include a final oral examination in front of a committee, but no written report)

### **Emphasis - Hydrology & Comp Hydrosience** **Description**

An M.S. in engineering science with an emphasis in hydrology and computational hydrosience prepares a student with advanced technical knowledge and communication skills for pursuing a career in industry, engineering research and development, public service, or for doctoral work. This degree is cross-listed between several departments within the School of Engineering. The student's home department is the same as the student's academic adviser's home department. It covers the fields of surface hydrology, groundwater hydrology, computational hydrosience and/or hydraulic engineering.

#### **Course Requirements**

For the M.S. in engineering science with emphasis in hydrology and computational hydrosience, a student must complete 24 credit hours of coursework (plus at least 6 thesis hours). Graduate coursework must be approved by the student's advisory committee. Below is a full list of recommended courses. In addition to the previously mentioned credit hours, students must enroll in a 1-hour graduate seminar each semester.

Students must choose from this recommended list:

- Engr 591 - Engineering Analysis II
- Engr 593 - Approximate Methods of Engr Analysis I
- Engr 609 - Time Series Analysis
- Engr 617 - Continuum Mechanics
- Engr 620 - Advanced Remote Sensing
- Engr 625 - Adv. Topics in Computational Mechanics
- Engr 636 - Groundwater Mechanics
- Engr 637 - Groundwater Modeling
- Engr 711 - Turbulence
- Engr 597 - Advanced Geospatial Analysis
- Engr 598 - Water and Wastewater Treatment
- Engr 604 - Fluid Dynamics II
- Engr 573 - Environmental Remediation
- Engr 645 - Contaminant Transport
- Engr 618 - Vadose Zone Hydrology
- Engr 616 - Isotope Hydrogeology
- Engr 627 - Applied Probability Modeling
- Math 555 - Advanced Calculus I
- Math 556 - Advanced Calculus II
- Math 575 (675 / 775) - (Advanced) Mathematical Statistics I
- Math 576 (676 / 776) - (Advanced) Mathematical Statistics II
- C E 541 - Flow in Open Channels
- C E 572 - Stormwater Engineering and Management
- Ch E 560 - Advanced Transport Phenomena I
- Ch E 561 - Advanced Transport Phenomena II
- Geol 500 - Introduction to GIS
- Geol 505 - Hydrogeology
- Geol 615 - Geostatistics
- G E 510 - Remote Sensing
- G E 503 - Environmental Geochemistry
- Csci 526 - Parallel Computing



- Csci 547 - Digital Image Processing

### **Other Academic Requirements**

For either option, a candidate must pass a final oral examination.

