Instructors:

Professors of the Hydrosystems Lab teach this course. Professor Landry usually teaches it, although Prof. Garcia has also taught it in the past.

Prerequisites:

TAM 335 (Introductory Fluid Mechanics) is the only prerequisite listed. Basic fluid mechanics concepts are reviewed at the beginning of the semester so students whose are not familiar with the concepts can catch up. Some kind of knowledge about fluid mechanics is desirable, otherwise you will spend the first two weeks of the course studying concepts the rest of the class are just reviewing.

When to Take It:

This course is only offered during the Spring semester. Most students taking this course are Seniors in Civil Engineering, and most of them are focused on Hydraulics. However, there are always students from other majors, and anyone in the field of engineering with some interest in Hydraulic analysis is welcomed to take it. No strong fluid mechanics knowledge is necessary beforehand; with a strong mathematical background you will be able to succeed in this course. But, as it says before, it will require you to study some concepts the rest of the class are already familiar with, and you will need to do this during the first two weeks or so. Professor Landry is very patient and helpful, especially with those students whose majors are not directly related to Hydraulics.

Class Content:

The first part of the course summarizes the basic fluid mechanics concepts needed, which are continuity, momentum and energy equations. Then, the course focuses on open channel flow, and how to use the three mentioned concepts to open-channel problems. The kind of problems the student will get a chance to work on include the analysis of open-channel problems as well as the design of open-channels. Flood control is an important part of the design; spillways and dams are the hydraulic structures that will get more attention during this part of the course. The final weeks of the class are focused on pressurized pipe flow. Pipe network analysis is the most important concept of this last part; it is done by iterative methods such as Darcy-Weisbach or Colebrook-White, among others. The course has no lab assigned, but the instructors usually take students to the Hydrosystems Lab during lectures to show concepts learnt in class.

Work:

The course requires an average time commitment, comparable to the average ECE tech electives. There is a semester-long project which students choose what to work on from several options. This project is the most time consuming assignment of the course, and it is recommended to work on it throughout the semester. Apart from the project, there are also homework assignments, but these are only every two weeks and are not very time consuming. There is one midterm exam and one final. If you have been keeping up with the homework assignments you should do okay in the exams.

Life After:

Students in Civil Engineering focusing on Hydraulics usually take this course right before graduation, so the next natural step is either to get a job or go to grad school. For ECE majors, this course is not on the list of approved technical electives, so it is only recommended for those who wish to gain some insight about hydraulic analysis.