

# Internet and Web Undergraduate Certificate

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## Certificate Requirements

The undergraduate certificate in Internet and Web is a five-course (15 credit hour) program. It is designed to provide broad training in web technologies at both the client and server sides, including various stack architectures and frameworks, recent technologies such as REST and trends such as microservices. A minimum GPA of 2.5 is required for admission.

### Required Courses

CMP SCI 3010	Web Full Stack Development	3
CMP SCI 4010	Web Development with Java	3
CMP SCI 4011	Web Development with Advanced JavaScript	3
CMP SCI 4012	Introduction to Enterprise Microservice Development	3

### Elective

Choose one of the following courses: 3

CMP SCI 4020	Introduction to Android Apps: Android Fundamentals
CMP SCI 4030	Introduction to Intelligent Web
CMP SCI 4610	Database Management Systems
CMP SCI 4730	Computer Networks and Communications
CMP SCI 4750	Introduction to Cloud Computing

**Total Hours** 15

A minimum of three courses must be taken from UMSL. Courses may be substituted with the permission of the certificate coordinator. For more information, students can contact the department chair or email [info@arch.umsl.edu](mailto:info@arch.umsl.edu).

## Learning Outcomes

Upon completion the program, certificate earners will be able to:

- Identify and implement techniques for communicating complex information on the Web
- Use Web languages to integrate media and user interaction
- Design and develop Internet applications
- Use the state-of-the-art languages and frameworks on both server and client sides