

ESTR2106 2022–23 Term 1: Building Web Applications

Course Outline

The course is concerned with the development of **web applications**. The major topics include

1. Building blocks of web applications,
2. Client-side/front-end technologies,
3. Server-side/back-end technologies, and
4. Web application design and security issues.

At the end of the course of studies, students will have acquired the ability to

- ✧ Understand the principles and technologies involved in building a web application
- ✧ Gain a better insight into emerging web technologies for building web applications
- ✧ Create interactive dynamic websites and web applications

Enrolment Prerequisites

Some programming background is needed: AIST1110 or CSCI1110/1120/1130/1510/1520/1530/1540 or ENGG1110 or ESTR1002/1100/1102 or MATH2221 or PHYS2061 or its equivalent

Course Hours

Lectures (**4h/week**): **Wed.** 15:30–16:15 and **Thur.** 12:30–14:15 @**ERB LT** + **Wed.** 16:30–17:15 @**ERB 405**

All lectures will be recorded on Panopto as a simultaneous webcast

Labs (**1h/week**): All on **Wed.** 11:30–12:15/12:30–13:15/17:30–18:15 @**SHB 924**, 14:30–15:15 @**SHB 123**

To ensure lab capacity, you are expected to attend the enrolled lab hour

Expected: Your own study hours, assisted by online course community

Course Instructor

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Course Tutors

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Course Plan

Week	Dates	Lectures	Lab
1	7/9, 8/9	Introduction, HTML, Bootstrap, Networking	No lab
2	14/9, 15/9	CSS, Layouts	Basic Bootstrap page
3	21/9, 22/9	JavaScript, Input and Forms, TypeScript	JavaScript
4	28/9, 29/9	Async JS, Fetch, DOM	Fetch
5	5/10, 6/10	JS Array and Function, npm	MoreJS
6	12/10, 13/10	React	React
7	19/10, 20/10	SPA, Routing, and other web technologies	React Router
8	26/10, 27/10	Authentication and Security, HTTP, Node.js	Basic shell concepts
9	2/11, 3/11	Node.js and Express, MongoDB and More	Node.js
10	9/11, 10/11	Web Architectures, Serverless, GraphQL	MongoDB and API
11	16/11, 17/11	Midterm Exam	Midterm Q&A
12	23/11	TBC (No class for 24/11 due to Congregation)	Project VM Setup
13	30/11, 1/12	Review	Serverless

Course Assessment

- Assignments 30% (3×10%)
- Midterm Exam 40% [One must pass Midterm Exam to pass course]
- Project 30%
- There is no Final Exam

Note: Plagiarism is seriously penalized, don't try!

Useful References

- Tutorials at w3schools.com: <https://www.w3schools.com>
- Northwood, Chris. *The Full Stack Developer: Your Essential Guide to the Everyday Skills Expected of a Modern Full Stack Web Developer* (2018).
- Ferguson, Russ. *Beginning JavaScript: The Ultimate Guide to Modern JavaScript Development* (2019).

Connect with Us!

Course Blackboard site: https://blackboard.cuhk.edu.hk/ultra/courses/_167772_1/cl/outline

Slack channel for Q&A: Join here using SID@link email: <https://join.slack.com/t/csci2720-2022f/signup>

Modes of Delivery

- As a 3-credit ELITE course, 4 hours of lectures and 1 hour of lab attendance per week
- Students are expected to commit time outside classes for further studies of 6 hours per week, including for the course project for an extensive collaborative learning experience

Grade Descriptor

A	EXCELLENT – exceptionally good performance and far exceeding expectation in all or most of the course learning outcomes; demonstration of superior understanding of the subject matter, the ability to analyze problems and apply extensive knowledge, and skillful use of concepts and materials to derive proper solutions.
B	GOOD – good performance in all course learning outcomes and exceeding expectation in some of them; demonstration of good understanding of the subject matter and the ability to use proper concepts and materials to solve most of the problems encountered.
C	FAIR – adequate performance and meeting expectation in all course learning outcomes; demonstration of adequate understanding of the subject matter and the ability to solve simple problems.
D	MARGINAL – performance barely meets the expectation in the essential course learning outcomes; demonstration of partial understanding of the subject matter and the ability to solve simple problems.
F	FAILURE – performance does not meet the expectation in the essential course learning outcomes; demonstration of serious deficiencies and the need to retake the course.

Academic honesty and plagiarism

Attention is drawn to University policy and regulations on honesty in academic work, and to the disciplinary guidelines and procedures applicable to breaches of such policy and regulations. Details may be found at <http://www.cuhk.edu.hk/policy/academichonesty/>.