**CEJV 559   Web Application Development with Java**

**Day/Time: Tuesday 18:00 to 22:00     Room: FB107  
2019-01-15 to 2019-03-19**

**Instructor Coordinates:**

* Kenneth Fogel
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  + Include the course number, CEJV559, in the subject field of emails that you send

**Course Prerequisites**

* CEJV 416
* CEWP 329

**Course Description**

This course focuses on developing JEE 8 (Java Enterprise Edition) web components for dynamic web applications. The primary focus will be on using the JavaServer Faces framework for web development and the Java Persistence API for database access. Students will learn how to create online shopping carts, validate and persist form data, generate dynamic AJAX-style (Asynchronous JavaScript and XML) content, and create CRUD (Create, Read, Update, Delete) database applications. Topics will include implementing an MVC (Model-View-Controller) design, using EL (Expression Language), creating filters, and securing web applications, and accessing a database using the JPA (Java Persistence API). The forerunner of JavaServer Faces, Servlets and Java Server Pages will also be examined. Upon completion of this course, the student will be able to design, create and deploy robust and secure web applications.

**Course Objectives**

Upon completion of this course the student will be able to:

* Develop MVC (Model View Controller) applications that are coded as:
  + JavaServer Faces and Facelets
* Utilize CDI (Contexts and Dependency Injection) to create managed beans
* Use Arquillian and JUnit to test managed beans
* Use ORM with JPA to access data from a relational database in a web context

**Course Methodology**

* Lectures
* In-class exercises
* Lab Assignments

**Learning Resources:**

* Class notes, presentations and sample code available on Moodle
* Readings assigned in class from the Internet

**Course Content:**

|  |  |
| --- | --- |
| **1** | Implement the development environment using Maven, NetBeans, Payara, and MySQL |
| **2** | Using Maven and Git |
| **3** | Examine low level server side programming consisting of: |
|  | * + Java Servlets |
|  | * + JavaServer Pages |
| **4** | Use the Java Persistence API to interact with a relational database |
| **5** | Examine high level server side programming consisting of: |
|  | * + JavaServer Faces |
|  | * + JavaServer Facelets |
|  | * + Managed Beans |
|  | * + Expression Language |
| **6** | Use Arquillian and JUnit to test managed beans |
| **7** | Utilize JSF Tags |
| **8** | Employ Facelets to create user interface templates |
| **9** | Use standard converters and validators |
| **10** | Employ Ajax in a JSF project |
| **11** | Securing a web application |

**Communication outside course hours**

* If you have any questions or to submit assignments, please use my email address of [kenneth.fogel@concordia.ca](mailto:kenneth.fogel@concordia.ca)
  + Include the course number, CEJV559, in the subject field of emails that you send
* I will do my best to respond within 48 hours

**Assessment/Evaluation:**

* Lab Assignments 70%
* Final Exam 30%

A minimum grade of 60% is required to successfully complete this course.

**Software:**

* The IDE for this course is NetBeans 8.2 and is available for free from:

<http://netbeans.org>

Download the Java EE bundle.

* The server will be Payara 5.184 a fork of GlassFish, found at http://www.payara.fish/all\_downloads
* The database will be MySQL 5.7 or MySQL 8. There are minor differences between the versions and 5.7 is installed at Concordia so it is the preferred version
* The version of Java will be 1.80\_191 SDK. There are now multiple distributions of Java but I recommend downloading from Oracle at <https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>. Do Not Download and install Java 9, 10 or 11.
* This environment can be setup on Windows, Mac, and Linux

**Submissions:**

All work must be managed from a Git repository on GitLab.com. You will give the instructor ‘maintainer access to your repository.

**Rights and Responsibilities:**

**Plagiarism**The most common offense under the Academic Code of Conduct is plagiarism which the Code defines as “the presentation of the work of another person as one’s own or without proper acknowledgement.”

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