



Approved by Chair:

Signature

COURSE SECTION INFORMATION

Web Application Development Using Java

Teacher's Name: Sergio Santilli

Course Code: COMP 3095

Email: Sergio.Santilli@georgebrown.ca

Section: All

Office: Out of Class Assistance

Academic Year: 2020-2021

Term: Fall 2020

LIST OF TEXTBOOKS AND OTHER TEACHING AIDS:

Required:

1. <https://spring.io/guides> The Official Spring, Spring Boot, and related technology guides, tutorials, and best practices.

Recommended Resources/References:

2. Getting Started with Spring Framework: Fourth Edition: Author: Ashish Sarin, J Sharma:
Publisher: CreateSpace Independent Publishing Platform: ISBN10: 1979962782 | ISBN13: 978-1979962780
3. <https://www.baeldung.com/> Spring, Spring Boot, Spring Security, Spring Persistence, Spring ReSTful, and Jackson and JSON general guides
4. Online Tutorials:
 - a. Spring Developer Channel → <https://www.youtube.com/user/SpringSourceDev>
 - b. Spring Documentation → <https://docs.spring.io/spring/docs/current/spring-framework-reference/>

Other:

- Jet Brain IntelliJ
 - <https://www.jetbrains.com/community/education/#students>
- Eclipse Foundation
 - <https://www.eclipse.org/ide/>

Detailed Evaluation System

Assessment Tool:	Description:	Outcome(s) demonstrated:	EES demonstrated:	Date / Week:	% of Final Grade:
Assignment 1	Team assignment.	1, 2, 3	4, 5, 6	Week 5	15%
Assignment 2	Team assignment.	3, 4, 5, 6, 7	4, 5, 6, 9, 10	Week 9	15%
Assignment 3	Team assignment.	3, 4, 5, 6, 7	4, 5, 6, 9, 10	Week 13	15%
Mid Term Exam	Multiple choice test that evaluates concepts learned in the class and lab.	1, 2, 3	1, 2, 4	Week 7	25%
Final Exam	Multiple choice test that evaluates concepts learned in the class and lab.	4, 5, 6, 7	2, 4, 5	Week 15	30%
				TOTAL:	100%

Learning Schedule / Topical Outline (subject to change with notification)

TOPICAL OUTLINE:

Week	Topic /Task	Outcome	Content/Activities	Resources
1	1	1, 6	Introduction to Spring Framework <ul style="list-style-type: none"> • History of Spring • Spring Timeline • Overview of the Spring Framework • Advantages of Using Spring • Inversion of Control <ul style="list-style-type: none"> ○ Traditional Approach ○ Limitations ○ Revised Approach • Aspect Oriented Programming • Introduction to Hibernate • Introduction Maven • Introduction to Gradle • Enterprise Application Development 	Chapter 1 https://docs.spring.io/spring/docs/current/spring-framework-reference/overview.html

2	2	1, 6, 7	Spring Overview – Creating Projects <ul style="list-style-type: none"> • Spring Initializr • Spring Boot Starters • start.spring.io • @SpringBootApplication • @SpringBootTest • JPA Model <ul style="list-style-type: none"> ○ Creating POJOs ○ JPA Id's ○ JPA Relationship ○ Equality ○ Equals and Hash Code ○ ToString • Spring Data Repositories • Initializing Data with Spring • H2 Database Console • Introduction into Spring MVC • Configuring Spring MVC Controllers • Thymeleaf Templates 	Chapter 2 https://spring.io/guides/gs/spring-boot/ https://www.baeldung.com/the-persistence-layer-with-spring-data-jpa
3	3	1, 6, 7	Dependency Injection <ul style="list-style-type: none"> • SOLID principles • Creating a Spring DI Example Project • Create and Clone in Git • Spring Context • Basics of Dependency Injection • Dependency Injection without Spring • Property Injection • Setter Injection • Constructor Injection 	Chapter 3 Chapter 4

4	4, 5	1, 2, 6	Dependency Injection Using Spring <ul style="list-style-type: none"> • Using Qualifiers • Primary Beans • Spring Profiles • Default Profile • Spring Bean Life Cycle • Open/Closed Principle – Revisited • Interface Segregation Principle – Revisited • Dependency Injection Principle – Revisited • Interface Naming Conventions 	Chapter 3 Chapter 4
5	6	3, 6, 7	Spring Configuration <ul style="list-style-type: none"> • Spring Configuration Options • Spring Framework Stereotype • Spring Component Scan • Java Configuration Example • Spring XML Configuration • Spring Factory Bean • Spring Boot Configuration • Spring Boot Starters • Spring Boot Annotations • Spring Bean Scope Assignment #1	Chapter 3 Chapter 5 Chapter 7
6	7	3, 6, 7	External Properties with Spring Framework <ul style="list-style-type: none"> • Overview • Property Source • Spring Environment Properties • Multiple Property Files • Spring Boot Application.properties • Introduction to YAML • Spring Boot Yaml Properties • Property Hierarchy Use by Spring Boot • Spring Boot Profile Properties 	
7			Midterm Exam	
8	INTERSESSION WEEK			
9	8, 9	3, 4, 5, 6	Web Development with Spring MVC <ul style="list-style-type: none"> • Introduction to Spring MVC • Introduction to Thymeleaf • Creating an Index Page • HTTP Protocol • HTTP Request Methods • Chrome Developer Tools • Axis TCPMon • Spring Boot Development Tools 	Chapter 12 Chapter 13 https://docs.spring.io/spring/docs/current/spring-framework-reference/testing.html#testing

10	10, 11	3, 5, 6, 7	JPA Data Modeling with Spring Hibernate <ul style="list-style-type: none"> • Intorduction – JPA Data Modeling • JPA Entity Relationships • Recipe Data Model • One to One JPA Relationships • One to Many Relationships • JPA Enumerations • Many to Many Relationships • Creating Spring Data Repositories • Database Initilzation with Spring • Spring Data JPA Query Methods • Using Setters for JPA Bidrectional Relationships Assignment #2	Chapter 8 Chapter 9
11	12	5, 6	Project Lombok <ul style="list-style-type: none"> • Introduction to Project Lombok • Lombok Features • Adding Project Lombok and IDE Configuration • Using Project Lombok 	

12	13	5, 6, 7	Testing Spring Framework Applications <ul style="list-style-type: none"> • Introduction to Test Spring Framework • Using Bootstrap CSS • Introduction to Testing Spring Framework Applications • Creating a JUnit Test • Using Mockito Mocks • Mockito Argument Capture • Introduction to Spring MockMVC • Spring Integration Test • Maven Failsafe Plugin • Continuous Integration Test with Circle CI • Introduction to JUnit 5 	https://docs.spring.io/spring-framework/docs/current/spring-framework-reference/testing.html
13	14	7, 8	CRUD Operation with Spring MVC <ul style="list-style-type: none"> • Introduction • Using Webjars with Spring Boot • Display a Recipe by ID • Processing Form Posts with Spring MVC • Creating a Command Object and Type Conversions in Spring • Create a Recipe • Update a Recipe • Delete a Recipe • View Ingredients • Show Ingredient • Update Ingredient • Create an Ingredient • Enumeration Dropdowns with Spring MVC and Thymeleaf • Using the Debugger • Uploading Images with Spring MVC • Persisting images to Database • Displaying images from Database Assignment #3	https://docs.spring.io/spring/docs/current/spring-framework-reference/testing.html#testing
14	15	7, 8	Validation and Data binding in Spring Web MVC EXTRA: Developing RESTful web services using EXTRA: Spring Web MVC Spring Security	Chapter 13
15			FINAL EXAM	
<p>Please note: this schedule may change as resources and circumstances require.</p> <p>For information on withdrawing from this course without academic penalty, please refer to the College Academic Calendar: http://www.georgebrown.ca/Admin/Registr/PSCal.aspx</p>				