



## George Brown College

**COURSE NAME:** WEB APPL DEVELOP.USING JAVA

**COURSE CODE:** COMP3095

**CREDIT HOURS:** 4

**COURSE  
CONTACT  
HOURS:** 56

**PREREQUISITES:** COMP2080

**COREQUISITES:**

**EFFECTIVE  
DATE:** September 2016

**PLAR ELIGIBLE:** YES ( ) NO (X)

**PROFESSOR:** Sergio Santilli

**PHONE:** **EMAIL:** Sergio.Santilli@georgebrown.ca **OFFICE:** C430

## EQUITY STATEMENT

George Brown College values the talents and contributions of its students, staff and community partners and seeks to create a welcoming environment where equity, diversity and safety of all groups are fundamental. Language or activities which are inconsistent with this philosophy violate the College policy on the Prevention of Discrimination and Harassment and will not be tolerated. The commitment and cooperation of all students and staff are required to maintain this environment. Information and assistance are available through your Chair, Student Affairs, the Student Association or the Human Rights Advisor. George Brown College is dedicated to reducing barriers and providing equal access to education for students with disabilities. If you require academic accommodations, please contact the Accessible Learning Services office on your campus.

## STUDENT RESPONSIBILITIES

Students should be familiar with the college's policies regarding the grading system, withdrawals, exemptions, class assignments, missed tests and exams, supplemental privileges, and academic dishonesty. College policies can be viewed on the college's website at: <http://www.georgebrown.ca/policies>. Full-time students should obtain a copy of the Student Handbook and refer to it for additional information. Students are required to apply themselves diligently to the course of study, and to prepare class and homework assignments as given. Past student performance shows a strong relationship between regular attendance and success.

## COURSE DESCRIPTION

This course will provide the students with the knowledge and skills required to develop web applications based on Servlets, JavaBeans, JavaServer Pages technology, Model-View Controller Architecture and Struts. Students will also explore the technical details as well as best practices for designing, developing and deploying robust web applications.

## ESSENTIAL EMPLOYABILITY SKILLS

As mandated by the Ministry of Training, Colleges and Universities essential employability skills (EES) will be addressed throughout all programs of study. Students will have the opportunity to learn (L) specific skills, to practice (P) these skills, and /or be evaluated (E) on the EES outcomes in a variety of courses. The EES include communication, numeracy, critical thinking & problem solving, information management, interpersonal and personal skills. The faculty for this course has indicated which of the EES are either Learned (L), Practiced (P), or Evaluated (E) in this course:

Skill	L	P	E	Skill	L	P	E
1. communicate clearly, concisely and correctly in the written, spoken and visual form that fulfills the purpose and meets the needs of the audience				7. locate, select, organize and document information using appropriate technology and information sources			X
2. respond to written, spoken or visual messages in a manner that ensures effective communication			X	8. show respect for the diverse opinions, values, belief systems, and contributions of others	X		
3. execute mathematical operations accurately	X	X	X	9. interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals		X	X
4. apply a systematic approach to solve problems	X	X	X	10. manage the use of time and other resources to complete projects		X	X
5. use a variety of thinking skills to anticipate and solve problems	X	X	X	11. take responsibility for one's own actions, decisions and consequences		X	X
6. analyze, evaluate, and apply relevant information from a variety of sources		X	X				

## COURSE OUTCOMES AND OBJECTIVES

Upon successful completion of this course the students will have reliably demonstrated the ability to:

1. Develop simple web applications using Servlet technology.
2. Examine the use of session objects to manage sessions.
3. Implement web applications using JavaServer Pages (JSP)
4. Create and deploy JavaBeans and employ Model-View Controller Architecture.
5. Explore the JSF framework for building robust web applications based.
6. Apply best practices for designing, developing and deploying web applications.
7. Implement a multi-tier web application by utilizing a variety of Java technologies.

## DELIVERY METHODS

The instructional methods of this course are comprised of a combination of lectures, demonstrations, hands-on exercises and take-home assignments

## LIST OF TEXTBOOKS AND OTHER TEACHING AIDS

### Required:

1. Core Servlets and JavaServer Pages: Volume I: Core Technologies: 2/e. Author: Marty Hall, Larry Brown. Publisher: Prentice Hall. ISBN10: 0130092290 | ISBN13: 9780130092298. eBook: <http://pdf.coreservlets.com/>
2. Online Tutorial: <http://www.coreservlets.com/JSF-Tutorial/jsf2/>

### Recommended Resources/References:

NetBeans at <http://www.netbeans.org/>

## TESTING POLICY

1. A score of zero will be recorded for a missed assignment or examination unless the student presents the professor with official substantiation of the absence the first day she or he returns to class.
2. Students are responsible for reading the appropriate material **before classes** so that they may benefit from their practical activities and examples

## ASSIGNMENT POLICY

1. Students are responsible for keeping a back-up copy of each assignment submitted.
2. All assignments submitted should adhere to the documentation standards distributed by the professor.
3. Students should check the assignment handouts for the instructions for submission.

See the Missed Assessments and Late Assignments Policy as well as George Brown College policies and procedures regarding withdrawals, exemptions, attendance, class assignments, academic dishonesty and supplemental examinations (refer to <http://www.gbrownc.on.ca/Admin/VP Acad/policies/index.html>).

Supplemental tasks/examinations are not a right but a privilege granted by a Promotion Committee on an individual basis to students who have failed a course after attending the entire course and attempting the final examination. Individual professors do not make decisions regarding the policies of the Promotion Committee.

If a student misses a test because of medical reasons and can provide a doctor's note, he/she may be given a chance to rewrite the test at a later date.

All assignments must be submitted on the due date in class. For every day past the due date there will be 10% penalty unless the student has notified the professor (via e-mail, phone or in person) ahead of due date that he/she has a valid reason for late submission

## EVALUATION SYSTEM

Assessment Tool:	Description:	Outcome(s) demonstrated:	EES demonstrated:	Date / Week:	% of Final Grade:
<b>Lab Test 1</b>	Hands-on test conducted in the lab where students have to demonstrate their skills.	1, 2	1, 2, 4	Week 5	10%
<b>Assignment 1</b>	Take home assignment.	1, 2, 3	4, 5, 6	Week 6	15%
<b>Mid Term Exam</b>	Multiple choice test that evaluates concepts learned in the class and lab.	1, 2, 3	1, 2, 4	Week 7	20%
<b>Lab Test 2</b>	Hands-on test conducted in the lab.	3, 4, 5	4, 6, 7	Week 12	10%
<b>Assignment 2</b>	Take home team assignment.	3, 4, 5, 6, 7	4, 5, 6, 9, 10	Week 13	15%
<b>Final Exam</b>	Multiple choice test that evaluates concepts learned in the class and lab.	4, 5, 6, 7	2, 4, 5	Week 15	30%
				<b>TOTAL:</b>	<b>100%</b>

## GRADING SYSTEM

The passing grade for this course is: 50%

<b>A+</b>	<b>90-100</b>	<b>4.0</b>	<b>B+</b>	<b>77-79</b>	<b>3.3</b>	<b>C+</b>	<b>67-69</b>	<b>2.3</b>	<b>D+</b>	<b>57-59</b>	<b>1.3</b>	<b>&lt; 50</b>	<b>F</b>	<b>0.0</b>
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<b>A</b>	<b>86-89</b>	<b>4.0</b>	<b>B</b>	<b>73-76</b>	<b>3.0</b>	<b>C</b>	<b>63-66</b>	<b>2.0</b>	<b>D</b>	<b>50-56</b>	<b>1.0</b>			
<b>A-</b>	<b>80-85</b>	<b>3.7</b>	<b>B-</b>	<b>70-72</b>	<b>2.7</b>	<b>C-</b>	<b>60-62</b>	<b>1.7</b>						

**Excerpt from the College Policy on Academic Dishonesty:**

The **minimal** consequence for submitting a plagiarized, purchased, contracted, or in any manner inappropriately negotiated or falsified assignment, test, essay, project, or any evaluated material will be a grade of zero on that material. To view George Brown College policies please go to [www.georgebrown.ca/policies](http://www.georgebrown.ca/policies).

**TOPICAL OUTLINE**

<b>Week</b>	<b>Topic/Task</b>	<b>Outcome</b>	<b>Content/Activities</b>	<b>Resources</b>
1	1	1	<ul style="list-style-type: none"> <li>• Understanding the role of servlets</li> <li>• Building Web pages dynamically</li> <li>• Looking at servlet code</li> <li>• Evaluating servlets vs. other technologies</li> <li>• Understanding the role of JSP</li> <li>• Installing and configuring Java</li> <li>• Downloading and setting up a server</li> <li>• Configuring your development environment</li> <li>• Testing your setup</li> <li>• Simplifying servlet and JSP deployment</li> <li>• Locating files in Tomcat</li> <li>• Organizing projects into Web applications</li> </ul>	Chapter 1, 2
2	2	1, 6	<ul style="list-style-type: none"> <li>• The basic structure of servlets</li> <li>• A simple servlet that generates plain text</li> <li>• A servlet that generates HTML</li> <li>• Servlets and packages</li> <li>• Some utilities that help build HTML</li> <li>• The servlet life cycle</li> <li>• How to deal with multithreading problems</li> <li>• Tools for interactively talking to servlets</li> <li>• Servlet debugging strategies</li> <li>• Reading individual request parameters</li> <li>• Reading the entire set of request parameters</li> <li>• Handling missing and malformed data</li> <li>• Filtering special characters out of the request</li> </ul>	Chapter 3, 4

			<p>parameters</p> <ul style="list-style-type: none"> <li>• Automatically filling in a data object with request parameter values</li> <li>• Dealing with incomplete form submissions</li> </ul>	
3	3	1, 6, 7	<ul style="list-style-type: none"> <li>• Reading HTTP request headers</li> <li>• Building a table of all the request headers</li> <li>• Understanding the various request headers</li> <li>• Reducing download times by compressing pages</li> <li>• Differentiating among types of browsers</li> <li>• Customizing pages according to how users got there</li> <li>• Accessing the standard CGI variables</li> <li>• Format of the HTTP response</li> <li>• How to set status codes</li> <li>• What the status codes are good for</li> <li>• Shortcut methods for redirection and error pages</li> <li>• A servlet that redirects users to browser-specific pages</li> <li>• A front end to various search engines</li> </ul>	Chapter 5, 6
4	4	1, 2, 6	<ul style="list-style-type: none"> <li>• Format of the HTTP response</li> <li>• Setting response headers</li> <li>• Understanding what response headers are good for</li> <li>• Building Excel spread sheets</li> <li>• Generating JPEG images dynamically</li> <li>• Sending incremental updates to the browser</li> <li>• Understanding the benefits and drawbacks of cookies</li> <li>• Sending outgoing cookies</li> <li>• Receiving incoming cookies</li> <li>• Tracking repeat visitors</li> <li>• Specifying cookie attributes</li> <li>• Differentiating between session</li> </ul>	Chapter 7, 8

			cookies and persistent cookies <ul style="list-style-type: none"> <li>• Simplifying cookie usage with utility classes</li> <li>• Modifying cookie values</li> <li>• Remembering user preferences</li> </ul>	
5	5	1, 2, 6, 7	<ul style="list-style-type: none"> <li>• Implementing session tracking from scratch</li> <li>• Using basic session tracking</li> <li>• Understanding the session-tracking API</li> <li>• Differentiating between server and browser sessions</li> <li>• Encoding URLs</li> <li>• Storing immutable objects vs. storing mutable objects</li> <li>• Tracking user access counts</li> <li>• Accumulating user purchases</li> <li>• Implementing a shopping cart</li> <li>• Building an online store</li> <li>• Understanding the need for JSP</li> <li>• Evaluating the benefits of JSP</li> <li>• Comparing JSP to other technologies</li> <li>• Avoiding JSP misconceptions</li> <li>• Installing JSP pages</li> <li>• Surveying JSP syntax</li> </ul> <b>LAB TEST #1</b>	Chapter 9, 10
6	6	3, 6, 7	<ul style="list-style-type: none"> <li>• Static vs. dynamic text</li> <li>• Dynamic code and good JSP design</li> <li>• The importance of packages for JSP helper/utility classes</li> <li>• JSP expressions</li> <li>• JSP scriptlets</li> <li>• JSP declarations</li> <li>• Servlet code resulting from JSP scripting elements</li> <li>• Scriptlets and conditional text</li> <li>• Predefined variables</li> <li>• Servlets vs. JSP pages for similar tasks</li> <li>• Understanding the purpose of the page directive</li> <li>• Designating which classes are imported</li> </ul>	Chapter 11, 12

			<ul style="list-style-type: none"> <li>• Specifying the MIME type of the page</li> <li>• Generating Excel spreadsheets</li> <li>• Participating in sessions</li> <li>• Setting the size and behavior of the output buffer</li> <li>• Designating pages to handle JSP errors</li> <li>• Controlling threading behavior</li> <li>• Using XML-compatible syntax for directives</li> </ul> <b>ASSIGNMENT #1 due</b>	
7	<b>MIDTERM EXAM</b>			
8	<b>INTERSESSION WEEK</b>			
9	7	3	<ul style="list-style-type: none"> <li>• Using jsp:include to include pages at request time</li> <li>• Using &lt;%@ include ... %&gt; (the include directive) to include files at page translation time</li> <li>• Understanding why jsp:include is usually better than the include directive</li> <li>• Using jsp:plugin to include applets for the Java Plug-in</li> <li>• Understanding the benefits of beans</li> <li>• Creating beans</li> <li>• Installing bean classes on your server</li> <li>• Accessing bean properties</li> <li>• Explicitly setting bean properties</li> <li>• Automatically setting bean properties from request parameters</li> <li>• Sharing beans among multiple servlets and JSP pages</li> </ul>	Chapter 13, 14
10	8	3, 5, 6	<ul style="list-style-type: none"> <li>• Understanding the benefits of MVC</li> <li>• Using RequestDispatcher to implement MVC</li> <li>• Forwarding requests from servlets to JSP pages</li> <li>• Handling relative URLs</li> <li>• Choosing among different display options</li> <li>• Comparing data-sharing strategies</li> </ul>	Chapter 15, 16

			<ul style="list-style-type: none"> <li>• Forwarding requests from JSP pages</li> <li>• Including pages instead of forwarding to them</li> <li>• Motivating use of the expression language</li> <li>• Invoking the expression language</li> <li>• Disabling the expression language</li> <li>• Preventing the use of classic scripting elements</li> <li>• Understanding the relationship of the expression language to the MVC architecture</li> <li>• Referencing scoped variables</li> <li>• Accessing bean properties, array elements, List elements, and Map entries</li> <li>• Using expression language operators</li> <li>• Evaluating expressions conditionally</li> </ul>	
11	9	1, 2, 3, 6, 7	<ul style="list-style-type: none"> <li>• Data submission from forms</li> <li>• Text controls</li> <li>• Push buttons</li> <li>• Check boxes and radio buttons</li> <li>• Combo boxes and list boxes</li> <li>• File upload controls</li> <li>• Server-side image maps</li> <li>• Hidden fields</li> <li>• Groups of controls</li> <li>• Tab ordering</li> <li>• A Web server for debugging forms</li> </ul>	Chapter 19
12	10	5	<ul style="list-style-type: none"> <li>• Different views of JSF</li> <li>• Pros and cons of JSF</li> <li>• New features in JSF 2.2</li> <li>• Getting required software</li> <li>• Testing projects</li> <li>• Sneak preview of basic features</li> <li>• Simplified flow of control</li> <li>• @ManagedBean and default bean names</li> <li>• Default mappings for action controller return values</li> <li>• Using bean properties to handle request Parameters</li> </ul>	Online Tutorial: <a href="http://www.coreservlets.com/JSF-Tutorial/jsf2/index.html#Basics">http://www.coreservlets.com/JSF-Tutorial/jsf2/index.html#Basics</a>



			<b>LAB TEST #2</b>	
13	11	5, 6	<ul style="list-style-type: none"> <li>• Basic beans and “managed” beans</li> <li>• Three parts of beans in JSF</li> <li>• Pre-populating input fields</li> <li>• Custom bean names</li> <li>• Bean scopes</li> <li>• Getting the “raw” request and response objects</li> <li>• Dependency injection</li> </ul> <b>ASSIGNMENT #2</b>	Online Tutorial: <a href="http://www.coreservlets.com/JSF-Tutorial/jsf2/index.html#Beans-1">http://www.coreservlets.com/JSF-Tutorial/jsf2/index.html#Beans-1</a> <a href="http://www.coreservlets.com/JSF-Tutorial/jsf2/index.html#Beans-2">http://www.coreservlets.com/JSF-Tutorial/jsf2/index.html#Beans-2</a>
14	12	5, 6, 7	<ul style="list-style-type: none"> <li>• Explicit navigation rules</li> <li>• Explicit bean declarations</li> <li>• Advanced navigation options</li> <li>• Static navigation</li> <li>• Common navigation problems</li> <li>• Motivating use of the expression language</li> <li>• Accessing bean properties</li> <li>• Submitting bean properties</li> <li>• Accessing collection elements</li> <li>• Using implicit objects and operators</li> <li>• Passing arguments to methods</li> </ul>	Online Tutorial: <a href="http://www.coreservlets.com/JSF-Tutorial/jsf2/index.html#Navigation">http://www.coreservlets.com/JSF-Tutorial/jsf2/index.html#Navigation</a>
15			<b>FINAL EXAM</b>	
Please note: this schedule may change as resources and circumstances require. For information on withdrawing from this course without academic penalty, please refer to the College Academic Calendar: <a href="http://www.georgebrown.ca/Admin/Registr/PSCal.aspx">http://www.georgebrown.ca/Admin/Registr/PSCal.aspx</a>				