Algonquin College

ALGONQUIN COLLEGE

CST8285
Web Programming
Course Outline

2022-2023

Pre-requisite(s)	CST8116
Co-requisite(s)	N/A
Prepared by	Hala Own
Approved by	Sandra Brancatelli, M.Eng., P.Eng., Academic Chair, ICT-Applications & Programming
Normative hours	56.00
Grading system	A+ Through F
Experiential Learning	No

Applicable Program(s)	Level	Core/Elective
0336X01FWO - Computer Programming	2	Core
0336X03FWO - Computer Programming	2	Core
0336X07PAO - Computer Programming	2	Core
0336X09FAO - Computer Programming	2	Core
1561X01FWO - Computer Programming and Analysis	2	Core
1561X03FWO - Computer Programming and Analysis	2	Core

Course Description

The World Wide Web (WWW) has become an integrated part of everyday life. Students develop basic skills of web programming, website design and implementation. JavaScript, HTML5, and PHP are used to explore web-based solutions to problems of increasing interactivity and complexity. Lectures are reinforced by practical assignments that encourage students to construct and maintain their own websites.

Vocational Learning Outcomes

This course provides the opportunity for you to achieve the following outcomes:

0336X01FWO - Computer Programming

VLO 1   Identify, analyze, develop, implement, verify and document the requirements for a computing environment. (T, A)

VLO 2   Contribute to the diagnostics, troubleshooting, documenting and monitoring of technical problems using appropriate methodologies and tools. (T, A)

VLO 3   Implement and maintain secure computing environments. (T, A)

VLO 4   Implement robust computing system solutions through validation testing that aligns with industry best practices. (T, A)

VLO 9   Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship. (T)

0336X03FWO - Computer Programming

VLO 1   Identify, analyze, develop, implement, verify and document the requirements for a computing environment. (T, A)

VLO 2   Contribute to the diagnostics, troubleshooting, documenting and monitoring of technical problems using appropriate methodologies and tools. (T, A)

VLO 3   Implement and maintain secure computing environments. (T, A)

VLO 4   Implement robust computing system solutions through validation testing that aligns with industry best practices. (T, A)

VLO 9   Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship. (T)

0336X07PAO - Computer Programming

VLO 1   Identify, analyze, develop, implement, verify and document the requirements for a computing environment. (T, A)

VLO 2   Contribute to the diagnostics, troubleshooting, documenting and monitoring of technical problems using appropriate methodologies and tools. (T, A)

VLO 3   Implement and maintain secure computing environments. (T, A)

VLO 4   Implement robust computing system solutions through validation testing that aligns with industry best practices. (T, A)

VLO 9   Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship. (T)

0336X09FAO - Computer Programming

VLO 1   Identify, analyze, develop, implement, verify and document the requirements for a computing environment. (T, A)

VLO 2   Contribute to the diagnostics, troubleshooting, documenting and monitoring of technical problems using appropriate methodologies and tools. (T, A)

VLO 3   Implement and maintain secure computing environments. (T, A)

VLO 4   Implement robust computing system solutions through validation testing that aligns with industry best practices. (T, A)

VLO 9   Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship. (T)

1561X01FWO - Computer Programming and Analysis

1561X03FWO - Computer Programming and Analysis

Assessment Levels —T: Taught **A**: Assessed **CP**: Culminating Performance

Essential Employability Skills

This course contributes to your program by helping you achieve the following Essential Employability Skills:

EES 1   Communicate clearly, concisely and correctly in the written, spoken and visual form that fulfills the purpose and meets the needs of the audience. (T, A)

EES 2   Respond to written, spoken or visual messages in a manner that ensures effective communication. (A)

EES 4   Apply a systematic approach to solve problems. (T, A)

EES 5   Use a variety of thinking skills to anticipate and solve problems. (T, A)

EES 7   Analyze, evaluate and apply relevant information from a variety of sources. (T, A)

EES 10   Manage the use of time and other resources to complete projects. (A)

Assessment Levels —T: Taught **A**: Assessed **CP**: Culminating Performance

Course Learning Requirements / Embedded Knowledge and Skills

When you have earned credit for this course, you will have demonstrated the ability to:

1. Write program code using structured programming, and top-down coding techniques

- Create informational web pages (with HTML tags) and interactive data-entry web pages using HTML (combined with JavaScript and PHP).
- Use HTML tags and JavaScript document objects and functions to access, navigate and manipulate web-based related information.
- Produce appropriate web-based outputs relating to user navigation requests and screen input data via a combination of HTML, JavaScript and PHP commands and functions.

2. Produce tested code that executes consistently through the use of valid and invalid data.

- Develop comprehensive and interactive input test data to test the functionality of JavaScript and PHP interactive web pages.
- Use the in-browser console to test JavaScript code live.
- Use the in-browser console to have a better understanding of JavaScript document objects.
- Use PHP debugging tools to solve issues with connecting to a database.

3. Prepare program documentation using prescribed program specifications

- Develop non-processing, descriptive comments in JavaScript and PHP web-based program source code in appropriate locations.
- Produce supplemental program code files linked to web-based output (e.g. PHP files connecting to MySQL database records).
- Use different methods of adding comments to code in various web languages.

4. Debug program problems using manual methods and computerized tools.

- Test code integrity and data validity by researching textbook references (paper-based and online resources), as well as web-based resources for JavaScript and PHP (such as application home sites (PHP), third-party tutorials, canned testing code, etc.).
- Use the in-browser element inspector to find issues with HTML and CSS code.
- Use the in-browser JavaScript console to debug issue within JavaScript
- Use PHP debugging tools to find solutions for errors.

5. Modify an existing program according to program specifications

- Edit existing HTML pages to add better design with CSS.
- Edit existing HTML pages to make them more interactive by inserting JavaScript functionality.
- Edit existing HTML pages to make them more advanced by inserting PHP functionality.
- Modify existing interactive web pages to operate with other programming languages to produce input-related output (e.g. input data from a web page becoming displayed output from a PHP file).

6. Install required software applications

- Identify popular web server softwares.
- Compare advantages and disadvantages of WampServer versus other web server softwares.
- Download web server softwares.
- Debug errors with web server software installation.

7. Use website design principles to support web programming.

- Use a sitemap as a guide to develop a website.
- Use a wireframe prototype(s) to guide development and layout of web pages.
- Use user scenarios to verify the website user experience
- Identify the web accessibility guidelines to follow for both public and private sector website development.

8. Deploy completed websites.

- deploy websites to a web server

Learning Resources

<u>**Required Software**</u> **(all open-source material accessed and installed during appropriate lab sessions):**
    1. WampServer

<u>**Required Hardware:**</u>
This course is part of the mobile (laptop) program initiative at Algonquin College.
Students are required to have a functioning laptop at all lecture and lab classes.
The specifications for the required laptop and additional information about the mobile
program initiative can be found at http://www3.algonquincollege.com/mlearning/
<u>**Recommended Textbook:**</u>
    1. Learning PHP, MySQL and JavaScript: A Step-by-Step Guide to Creating Dynamic Websites (ISBN 9781492093824)

<u>**Other References:**</u>
    1. W3schools.com

Learning Activities

- Lectures (2 hours per week)
- Labs (2 hour per week)
- Practical assignments
- Research of course-related material
- Tests

Pre-defined Evaluation / Earning Credit

The following list provides evidence of this course's learning achievements and the outcomes they validate:

Lab Activity(ies) (20%)

Validates Outcomes: CLR 1, CLR 2, CLR 4, CLR 5, CLR 6, CLR 7, EES 1, EES 2, EES 4, EES 5, EES 7, EES 10

Project(s) (30%)

Validates Outcomes: CLR 1, CLR 2, CLR 3, CLR 4, CLR 5, CLR 6, CLR 7, CLR 8, EES 1, EES 2, EES 4, EES 5, EES 7, EES 10

Midterm Exam(s) (20%)

Validates Outcomes: CLR 1, CLR 4, CLR 5, CLR 7, EES 4, EES 5

Final Exam (20%)

Validates Outcomes: CLR 1, CLR 4, CLR 5, CLR 7, EES 4, EES 5

Quiz(zes) (10%)

Validates Outcomes: CLR 1, CLR 3, CLR 4, CLR 5, CLR 7, EES 4, EES 5

Prior Learning Assessment and Recognition

Students who wish to apply for Prior Learning Assessment and Recognition (PLAR) need to demonstrate competency at a post-secondary level in all outlined course learning requirements. Evidence of learning achievement for PLAR candidates includes:

- Other: At the discretion of the department, an interview, portfolio, assignment and/or test may be required. The specifics will be determined on a case by case basis.

Other Information

Grade Scheme

Final Grade	Mark Equivalent	Numeric Value	Final Grade	Mark Equivalent	Numeric Value
A+	90% - 100%	4.0	A	85% - 89%	3.8
A-	80% - 84%	3.6	B+	77% - 79%	3.3
B	73% - 76%	3.0	B-	70% - 72%	2.7
C+	67% - 69%	2.3	C	63% - 66%	2.0
C-	60% - 62%	1.7	D+	57% - 59%	1.4
D	53% - 56%	1.2	D-	50% - 52%	1.0
F	0% - 49%	0	FSP	0	0

Course Related Information

Please refer to the Course Section Information (CSI) / weekly schedule for specific course-related information as provided by your professor.

Department Information

STUDENT ACADEMIC RESPONSIBILITIES

Each student is responsible for:
• Knowing the due dates for marked out-of-class assignments.
• Attending all classes and knowing the dates of in-class marked assignments and exercises.
• Maintaining a folder of all work done in the course during the semester for validation claims in cases of disagreement with faculty.
• Keeping both paper and electronic copies of all assignments, marked and unmarked, in case papers are lost or go missing.
• Regularly checking both Brightspace announcements as well as one's Algonquin e-mail account for important messages from both professors and college administration.
• Participating in on-line and classroom exercises and activities as required.
• Retaining course outlines for possible future use to support applications for transfer of credit to other educational institutions.

Department Grading Policy - For all courses that have both a theory and practical (lab) component, students must have a grade of at least 50% (or "D-") on both the theory component as well as in the practical (i.e. lab) component in order to achieve a passing grade in the course. i.e. Even if your combined grade exceeds 50% for the entire course, if you fail either the theory component or the practical component, you will not achieve a passing grade in the course.

Lab/Practical Assessment Demonstration "Demo" Requirements - Certain courses require students to demo their work after it has been submitted. These will be scheduled by the professor and involve 1-2 rudimentary questions to assure the professor that the work submitted by the student is their own. Demos are <u>not</u> graded items - the work submitted is graded. However, where demos are required, if a student does not demo their work, the work will not be graded (i.e. grade of 0 on the lab or practical assessment).

Department Academic Dishonesty Policy - Academic Integrity is very important to all of our faculty and administrative staff and as such, measures have been put into place to detect all forms of academic dishonesty, including plagiarism of code. If plagiarism is detected by a professor, the incident will be reported and investigated. If the findings of the investigation are that a student has submitted plagiarized work as their own, they will be subject to the following policy:
1. The first offence will result in the plagiarized assessment being assigned a grade of 0.
2. The second offence will result in the assignment of a grade of F for the course.
3. The third offence will result in removal of a student from the program of study.

Harassment/Discrimination/Violence will not be tolerated. Any form of harassment (sexual, racial, gender or disability-related), discrimination (direct or indirect), or violence, whether involving a professor and a student or amongst students, will not be tolerated on the college premises. Action taken will start with a formal warning and proceed to the full disciplinary actions as outlined in Algonquin College Policies - HR22 and SA07.
Harassment means one or a series of vexatious comment(s) (whether done verbally or through electronic means), or conduct related to one or more of the prohibited grounds that is known or ought reasonably to be known to be unwelcome/unwanted, offensive, intimidating, derogatory or hostile. This may include, but is not limited to: gestures, remarks, jokes, taunting, innuendo, display of offensive materials, offensive graffiti, threats, verbal or physical assault, stalking, slurs, shunning or exclusion related to the prohibited grounds.

For further information, a copy of the official policy statement can be obtained from the Student Association.

Violation of the Copyright Act
General – The Copyright Act makes it an offence to reproduce or distribute, in whatever format, any part of a publication without the prior written permission of the publisher. For complete details, see the Government of Canada website at http://laws.justice.gc.ca/en/C-42 . Make sure you give it due consideration, before deciding not to purchase a textbook or material required for your course.

Software Piracy - The Copyright Act has been updated to include software products. Be sure to carefully read the licensing agreement of any product you purchase or download, and understand the terms and conditions covering its use, installation and distribution (where applicable). Any infringement of licensing agreement makes you liable under the law.

Disruptive Behaviour is any conduct, or threatened conduct, that is disruptive to the learning process or that interferes with the well being of other members of the College community. It will not be tolerated. Members of the College community, both students and staff, have the right to learn and work in a secure and productive environment. The College will make every effort to protect that right. Incidents of disruptive behaviour must be reported in writing to the departmental Chair as quickly as possible. The Chair will hold a hearing to review available information and determine any sanctions that will be imposed. Disciplinary hearings can result in penalties ranging from a written warning to expulsion.

For further details, consult the Algonquin College Policies AA32, SA07 and IT01 in your Instaguide.

College Related Information

Algonquin College's policies have been developed to ensure the health, safety and security of all students, faculty and staff, and the proper and fair operation of the College as an academic institution and employer. Please refer to the Algonquin College Policies website for the most current policy information available at http://www.algonquincollege.com/policies/.

Students are especially encouraged to be aware of the following College expectations

<u>**Academic Integrity**</u>

Algonquin College is committed to the highest standards of academic integrity, and students are expected to uphold these standards as part of the learning process. Any academic work submitted by a student is expected to be their own work, unless designated otherwise and all sources must be attributed. All students should be familiar with the Algonquin College policy AA48: Academic Integrity which outlines student's roles and responsibilities and what represents academic dishonesty. In some courses, online proctoring may be used to prevent academic dishonesty. Additional information can be found at Academic Integrity - Student Survival Guide - Subject Guides at Algonquin College (libguides.com) and via Academic Integrity Student Resources. Students with any questions about the course expectations regarding academic integrity are encouraged to speak to their professor and the College's academic integrity team at acaio@algonquincollege.com

<u>**Centre for Accessible Learning**</u>

Students with visible and/or non-visible disabilities are encouraged to register with the Centre for Accessible Learning (CAL) in order to be eligible for appropriate learning supports and/or accommodations. Students are strongly encouraged to make an appointment with the Centre for Accessible Learning as early as possible when starting a program. Once your needs are identified, a Letter of Accommodation (LOA) will be issued which you can share with your professors. If you are a returning student, please ensure that professors are given a copy of your LOA each semester.

<u>**College Email**</u>

Students at Algonquin College are provided with a college email account. This is the address that will be used when the College, your professors, or your fellow students communicate important information about your program or course activities. Your network credentials can be found in the ACSIS portal and you are expected to check your Algonquin email regularly and to use it to send and receive college-related email. Support is available through the college Information Technology Service (ITS) at: https://www.algonquincollege.com/its/

Retroactive Accommodations

Students are expected to meet evaluation and completion deadlines as stated in course outline and course section information documents. In circumstances where evaluation and/or completion deadlines are missed or student performance has been affected by a temporary or permanent disability (including mental health), interim or retroactive accommodations may be considered. In such instances, please consult your course faculty member. For other situations where deferral of evaluations may be warranted, please?consult Algonquin College?Policy?[AA21: Deferred Evaluation](#).

Student Course Feedback

Algonquin College's invites students to share their course experience by completing a student course feedback survey for each course they take. For further details consult Algonquin College Policy [AA25: Student Course Feedback](#).

Use of Mobile Devices in Class

With the proliferation of small, personal mobile devices used for communications and data storage, Algonquin College believes there is a need to address their use during classes and examinations. During classes, the use of such devices unless authorized by your professor can be disruptive and disrespectful to others. During examinations, the use of such devices is generally prohibited unless authorized by your professor. Otherwise use is considered academic dishonesty in the form of cheating. For further details consult Algonquin CollegePolicy [AA32: Use of Mobile Devices in Class](#)

Technology Requirements

Students are required to have access to a computer and to the internet. There may also be additional technology-related resources required to participate in a course that are not included in the course materials fee, such as headphones, webcams, specialized software, etc. Details on these requirements can be found in the Course Section Information of the course outline for each course available on Brightspace.

Transfer of Credit

It is the student's responsibility to retain course outlines for possible future use to support applications for transfer of credit to other educational institutions.

Safe Harbour

In the event of an unexpected major event (pandemic, etc.), your course may have changes that are not reflected in the Course Outline. Should this happen, the Course Section Information document will have updated information about your course.