420-941-VA Web Services

Vanier College

Faculty of Continuing Education

Course title	Web Services	**Teacher**	Denis Rinfret
Course #	420-941-VA	**Email**	rinfretd@vaniercollege.qc.ca
Section	7001	**Semester**	Jan 17 to Apr 5 2023
Schedule	As shown on LÉA	**Room**	Online (Zoom)

Course Description

Public RESTful APIs of Web services have become valuable assets in the development of Web-connected applications. The availability of Web service APIs on the Internet allows developers to build a variety of applications that leverage these services into ever-evolving software integrations.

This course completes student training in the Web programming competencies by extending the server-side programming skills to include Web services.

Students will be able to design, implement, test, deploy, document, and present their own original RESTful Web service.

Course’s role in the program

This course completes student training in Web programming competencies by extending their server-side programming skills to cover topics related to designing, implementing, and securing Web Services, including process-to-process communications. This course leverages the knowledge and skills acquired in the 420-931-VA: Front-End Web Programming and 420-951-VA: Transactional Web Applications courses.

Many students complete internships in the Web programming field. These three courses prepare them for this experience.

Statement of course competencies

The competency **00SV Develop data exchange services** will be covered completely in this course.

Course-level Learning Outcome

Students will be able to design, implement, test, deploy, and document secure RESTful Web Services. They will also be able to build applications that consume these services.

Key Learning Outcomes

In the development, testing, and deployment of secure RESTful Web Services, students will

1. Analyze the requirements to be satisfied.
2. Prepare the appropriate development environment.
3. Design and implement a database matching the system requirements.
4. Design, implement, and test the application logic for the service.
5. Design and implement a sample application which consumes the service.
6. Integrate automated behavioural testing to control the quality of the service.
7. Deploy the service on an available server.
8. Produce the documentation for the service.

Required reading material (Textbook)

There is no required textbook for this course. Lecture notes will be provided through Omnivox, along with a list of recommended readings and tutorials. The list will be updated throughout the course as needed.

Weekly breakdown of course activities (tentative)

Week	Topics	Assessments
1	Course Introduction, Python	
2	Flask basics	

Week	Topics	Assessments
3, 4, 5	RESTful APIs, HTTP methods, Postman	Assignment 1 (Feb 24)
6, 7, 8	Database integration	Project proposal (Mar 2)
9	Security	
10	Advanced topics	Assignment 2 (Mar 24)
11	Project work	Exam (Mar 31)
12	Project work	Project (Apr 5)

Grading Scheme

Component	Grade	Approx. due date
Assignment 1	20%	February 24
Assignment 2	20%	March 24
Exam	30%	March 31
Project (LIA)	30%	April 5

Late work

A 10% penalty for each late day will be applied on assignments submitted after the deadline. The project (LIA) and the exam cannot be submitted late. Exceptions can only be granted only according to the College policies and procedures.

Project (Learning Integration Assessment)

In a team setting, students design, implement, and test a Web service of their own thinking and design. These Web services are deployed on free cloud service accounts or a local server providing similar testing capabilities. The services are tested using a continuous integration (CI) service. Students document their Web service API in a final report and present their final implementation to all students in the class.

Evaluation criteria for the learning integration assessment

- Compliance with the requirements

- Correctness of the solution with respect to the problem statement
- Usability of the service
- Reactiveness of the process-to-process interaction
- Design of the software architecture
- Quality of the implementation
- Quality of testing and absence of software bugs
- Security of the service
- Quality of the written user guide and technical documentation

Deliverables

- Deliverable 1: Project proposal
- Deliverable 2: Project implementation
- Deliverable 3: Project report and presentation

SPLI

The quality of English expression will be evaluated and be worth 10% of the total as part of grading the LIA written reports and in-class presentations.

Teaching Methodology

Programming exercises and discussion on sample programs can take place either during the lecture time or lab period. All meetings will be held **online** at the time of the scheduled classes using Zoom, through the link provided on Omnivox.

College policies & Procedures

There is a set of College policies and procedures covering the rights and responsibilities of both faculty and students. These cover grade review, student-faculty mediation, sexual harassment, standing and advancement, cheating and plagiarism, absences for religious holidays.

Note that students who observe religious holidays during the semester must inform the instructor, in writing, before the end of the first day of online class. Consult *Religious Holy Day Absences (see IPESA, Section 2.2.6)*. It is your responsibility to be aware of the various policies and procedures governing your rights and obligations while you are attending Vanier College.

Consult *Student Academic Complaints (see 7210-8), Code of Conduct: http://www.vaniercollege.qc.ca/bylaws-policies-procedures/code-of-conduct/ , Student*

Proficiency in the Language of Instruction (see 7210-33) and as well as any teacher or course-specific rules/guidelines that students should adhere to (see Appendix 2).

Respecting Privacy during Synchronous Online Classes

The instructor might proceed for recording the student's image and voice in the context of online synchronous lectures or labs class. Students will be asked for their permission and agreement through form or MIO. The recording will only be available to other students in the group through and will be deleted once the block has ended.

Respecting Intellectual Property Rights in Online Classes

Any material produced as part of the course, including, but not limited to, any pre-recorded or live video is protected by copyright, intellectual property rights and image rights, regardless of the medium used. It is strictly forbidden to record, copy,redistribute, reproduce, republish, store in any way, retransmit or modify this material. Any contravention of these conditions of use may be subject to sanction(s) by the College under the Code of Conduct.

Cheating & Plagiarism

Any form of cheating or plagiarism will result in a grade zero for that exam or assignment, and a letter from the course teacher will be placed in your file. A repeated offence may lead to more serious consequences. Consult The Vanier Student Writing Guide, the Vanier Catalogue, The Student Handbook, Cheating and Plagiarism (see 7210-31), Student Misconduct in the Classroom (7210-19) and your teacher for more information.

Attendance requirement

Students are responsible for material discussed during class time even when they are absent. The material covered in class may be different from what is presented in referenced material. Written and spoken class material may be part of exams. There is no grade for attendance, but students are responsible for in-class work and assessments whether they are present or absent.