Red River College Polytechnic campuses are located on the lands of Anishinaabe, Ininiwak, Anishininew, Dakota, and Dené, and the National Homeland of the Red River Métis.

# Course Outline

## Course Information

Course Code and Title: WEBD-3008 Full-Stack Web Development

Course Section: All Sections

Department/Program: Applied Computer Education/ Business Information Technology

Total Hours: 80

Credit Hours: 5

### Course Description:

This course provides an examination of the Ruby programming language and the Model-View-  
Controller (MVC) application design pattern. Learners will implement an e-commerce system using  
the Ruby on Rails web-programming framework as a course project. Coverage will also be given to  
server configuration, application deployment, source control and other contemporary web  
development topics.

### Recognition of Prior Learning (RPL):

Recognition of Prior Learning (RPL) refers to a set of processes that allow individuals to document, be assessed and gain recognition for their prior learning. The focus is on the learning rather than where or how the learning occurred. Knowledge, skills and abilities gained from life experiences may be formal ([transfer credit](https://www.rrc.ca/advising/transfer-credit/)), informal or non-formal. RRC Polytech evaluates and grants credit for qualifying prior learning that is equivalent to the learning outcomes for courses in a program. For more information about RPL at RRC Polytech, refer to [RPL](https://www.rrc.ca/advising/rpl/) or [Policy A14 – RPL](https://www.rrc.ca/legal/policies/recognition-of-prior-learning/).

For general information and assistance with RPL, contact RRC Polytech’s RPL Advisor at 204.632.3094 or [rpladvisor@rrc.ca](mailto:rpladvisor@rrc.ca).

### Accessibility Statement:

RRC Polytech is committed to providing persons with documented disabilities fair and equal access to educational programs, services and facilities. If you are a student with a disability\* and require reasonable accommodations, you must connect with Student Accessibility Services (SAS) who will assist in developing and implementing your accommodation plan. Refer to the [Student Accessibility Services webpage](https://www.rrc.ca/accessibility/) for information about SAS locations and how to [book an appointment](https://hub.rrc.ca/Forms/Start/AccessibilityRequest?_ga=2.209090074.987068331.1650400536-653561319.1650400536). Students with disabilities are also encouraged to have a private discussion with their instructor(s) to facilitate greater understanding of their learning needs.

\*RRC Polytech’s definition of “disability” is consistent with the Manitoba Human Rights Code. In the educational setting, “disability” refers to a permanent or temporary medical, physical, sensory, mental health (e.g., anxiety, depression), learning, or neurological (e.g., ADHD, Autism Spectrum Disorder) condition that interferes with a student’s ability to fully participate in their studies and/or other associated activities.

### Alternate Formats:

This content is available in alternate formats. To request, please contact [accessibility@rrc.ca](mailto:accessibility@rrc.ca).

### Academic Integrity:

Academic Integrity means acting with the values of honesty, trust, respect, responsibility, fairness and courage in learning, teaching and research to ensure that the credentials granted by RRC Polytech accurately represent demonstrated knowledge, skills and abilities. All members of the RRC Polytech community are expected to demonstrate these values through RRC Polytech learning activities, relationships and commitments. Clear expectations will be communicated to students to promote positive academic practices in compliance with RRC Polytech’s [Policy A17 – Academic Integrity](https://www.rrc.ca/legal/policies/academic-integrity/). Contact [academicintegrity@rrc.ca](mailto:academicintegrity@rrc.ca) for additional information.

### Academic Requisites:

* + - 1. ADEV-2008 Programming 2 (pre-requisite)
      2. WEBD-2008 Web Development 2 (pre-requisite)

### Course Delivery Methods:

This course will be delivered through a combination of in person lectures/demonstrations and online.

#### The following communication tools will be used in this course:

Microsoft Teams, LEARN, Email

#### Course format:

This course follows a step-by-step approach to present content to students. Students will be  
completing challenges and projects to reinforce concepts learned through lectures.

**72-hour assignment extension** may be granted to students **twice throughout term** by completing **the debug/refactor assignments.**

### Effective Date:

August 26, 2024

## Instructor Information

Instructor’s name: Wilson Reid

Email: wmreid@rrc.ca

Office phone: NA

Office location: P414

Office hours: 9-6 Mon-Fri, 11-6 Sat-Sun

## Student Readiness

### Technology and Equipment Readiness:

Computer – meeting the program minimum hardware and software requirements, internet, web  
camera, microphone, and headset.

### Student Commitments and Contact Times:

5 hours scheduled weekday attendance per week.

Students are expected to commit time outside of regularly scheduled classes to work on their  
challenges and projects.  
Students in this course are expected to regularly check their academic email account or ensure it is  
forwarded to another checked account.  
Instructors will notify students at the beginning of the term of any course specific communication  
methods.

### Course Resources:

All course resources will be supplied in the LEARN Course Management System.

### Textbook(s):

Ruby / Rails Documentation: http://api.rubyonrails.org

### References:

Official Ruby on Rails website: http://rubyonrails.org  
A Poignant Guide to Ruby: <http://mislav.uniqpath.com/poignant-guide/>

## Student Learning

### Learning Outcomes and Elements of Performance:

By the end of this course of study, you should be able to...

1. Write, debug and analyze Ruby command-line programs making use of looping and control structures
   1. Complex data structures, symbols, hashes, arrays, & ranges
   2. String manipulation
   3. Classes, objects, methods and object-oriented principals
   4. Stand-alone functions and blocks
   5. Reading and processing data from files
2. Explain the Model-View-Controller (MVC) application design pattern.
3. Install and configure Ruby on Rails
4. Write, debug and analyze Ruby on Rails applications that make use of Scaffolded Models, Views and (RESTful) Controllers
   1. Non-scaffold-generated Models, Views and Controllers
   2. Multiple Models, Views, Controllers
   3. Custom routes using the routing system
5. Write, debug and analyze Ruby on Rails Model objects that make use of Active-Record
   1. Model Validations
   2. Database Migrations
   3. Custom Model methods
6. Write, debug and analyze Ruby on Rails Controller objects (and associated Views) that make use of ERB (Embedded Ruby)
   1. Partials
   2. View helpers
   3. Custom layouts
   4. Cookies, Flash and Sessions
7. Write, debug, and analyze an e-commerce store web-application using Ruby on Rails. This e-commerce store will include an administrative portal for product listing maintenance
   1. A categorized catalogue display for e-commerce shoppers
   2. An interactive shopping cart with checkout capabilities
   3. Product search capabilities for shoppers
8. Use version control tools to store and retrieve Ruby on Rails source code.
9. Deploy a Ruby on Rails application to a production environment using a virtual private server, cloud hosting environment, and/or a containerization strategy.
10. Explain and demonstrate the execution of the source code for your Ruby and Ruby on Rails applications to the instructor and to fellow students.
11. Apply Active Record migrations to different databases e.g. to SQLite, PostgreSQL, and SQL Server

### 

### Instructional Schedule, Assessments and Dates:

**NOTE:** The following dates are subject to change based on the needs of the students at the instructor’s prerogative. Students will be notified ahead of time of any changes.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Module/Unit/Week  or Important Event | Topic and Learning Outcome(s) | Assessment  and Evaluation | Weight | Due Date |
| First Day of Classes | Software Installation / Intro to Ruby |  | [%] | Aug |
|  | Intro to Ruby |  |  |  |
|  | Object Oriented Ruby |  |  |  |
|  | Active Record ORM | Ultimate Challenge 0 (UC0) | 2% | Sept 10 |
|  | Active Record ORM | Ultimate Challenge 1 (UC1) | 2% | Sept 17 |
|  | Introduction to Rails | Ultimate Challenge 2 (UC2) | 2% | Sept 24 |
|  |  | Ultimate Challenge 3 (UC3) | 2% | Oct 1 |
|  | Build a Data Driven Rails Application | Ultimate Challenge 4 (UC4) | 2% | Oct 8 |
|  |  | Ultimate Challenge 5 (UC5)  Data Project Due | 2%  30% | Oct 22 |
|  | Active Admin/Storage |  |  |  |
|  | Session Based Shopping Cart/ Swipe Integration | Ultimate Challenge 6 (UC6) | 2% | Nov 5 |
|  | Final Project Milestone | Project Proposal Due |  | Nov 19 |
|  | Project | Ecommerce Project Due | 56% | Dec 9 |
| First Day of Classes |  |  |  | Aug. 26 |
| Add/Drop Period |  |  |  | Aug. 26-30 |
| VW Deadline for 16-Week Programs |  |  |  | Nov. 21 |
| Last Day of Classes for 16-Week Programs |  |  |  | Dec. 13 |
|  |  |  |  |  |
| Labour Day (No Classes) | | | | Sept. 2 |
| National Day for Truth and Reconciliation (No Classes) | | | | Sept. 30 |
| Fall Break (No Classes) | | | | Oct. 11 |
| Thanksgiving Day (No Classes) | | | | Oct. 14 |
| Remembrance Day (No Classes) | | | | Nov. 11 |
|  |  |  |  |  |

Assessment Total: 100%

### Letter Grade Distribution:

|  |  |  |
| --- | --- | --- |
| Letter | GPA | Percentage |
| A+ | 4.5 | 90 to 100% |
| A | 4.0 | 80 to 89% |
| B+ | 3.5 | 75 to 79% |
| B | 3.0 | 70 to 74% |
| C+ | 2.5 | 65 to 69% |
| C | 2.0 | 60 to 64% |
| D | 1.0 | 50 to 59% |
| F | 0.0 | 0 - 49% |

A grade of D is required to pass this course.

## Course Policies

### General Academic Policies:

It is the student's responsibility to be familiar with and adhere to the RRC Polytech Academic Policies. These Policies can be found in the RRC Polytech calendar or online under Academic Matters at [rrc.ca/legal/policies](http://www.rrc.ca/legal/policies).

### Supplementary Policies:

As a student at Red River College Polytechnic, you have certain rights and responsibilities. As such students should be familiar with the Policies involving student matters.

[S1 - Student Code of Rights and Responsibilities](https://www.rrc.ca/legal/policies/student-code-of-rights-and-responsibilities/)

[S2 - Student Discipline](https://www.rrc.ca/legal/policies/student-discipline/)

[S3 - Student Appeals](https://www.rrc.ca/legal/policies/student-appeals/)

[S5 - At-Risk Students](https://www.rrc.ca/legal/policies/at-risk-students/)

### Date Revised:

May 24, 2024

## Mental Health and Well-being at RRC Polytech

Having good personal health and well-being will support your success in this program.

### We Encourage You To:

* Recognize that stress is an expected part of being a college student.
* Rethink how you view difficulty. Being challenged is actually a part of learning and   
  reaching success.
* Reflect on your role in taking care of yourself throughout the term. Do your best to balance your schoolwork and life demands.
* Reach out to your instructor, program coordinator, or College supports at any time if something is affecting your academic performance. It’s always best to reach out early and it’s the responsible thing to do.

### College Supports Ready and Willing to Assist You:

* [[<https://www.rrc.ca/tltc/learn/>](https://www.rrc.ca/tltc/learn/)](https://www.rrc.ca/tltc/learn/)[<https://www.rrc.ca/its/>](https://www.rrc.ca/its/)[Academic Success Centre](https://www.rrc.ca/academic-success/)
* [Campus Well-Being](https://www.rrc.ca/wellness/)
* [Equity, Diversity and Inclusion Supports](https://www.rrc.ca/diversity)

* [Health Services](https://www.rrc.ca/health/)
* [Indigenous Student Supports](https://www.rrc.ca/indigenous/supports/)
* [International Student Supports](https://www.rrc.ca/international/student-support/)
* [Library Services](https://library.rrc.ca/home)
* [Student Accessibility Services](https://www.rrc.ca/accessibility/)
* [Student Counselling Services](https://www.rrc.ca/counselling/)
* [United Way 211 community resource](https://mb.211.ca/)

### Authorization:

This course is authorized for use by:

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Approved by Senior Academic Committee March 2024

Please retain this course outline for future educational and/or employment use.