

**Western University**  
**Faculty of Science**  
**Department of Computer Science**

## **General Course Information**

### **Course Information:**

Computer Science 2211a  
Software Tools and System Programming  
Course Outline – **Fall Term 2021**

### **Calendar Description:**

This course provides an introduction to software tools and systems level programming. Topics include: understanding how programs run (compilation, linking, and loading), an introduction to a complex operating system (UNIX), scripting languages, and the C programming language. As time permits, other topics will be chosen from: system calls, memory management, libraries, multi-component program organization and builds, version control, debuggers and profilers.

#### **Prerequisites**

[Either] Computer Science 1027a/b, 1037a/b, or 2101a/b with a grade of at least 65%;  
[-Or-] Integrated Science 1001X with a grade of at least 60%.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

#### **Antirequisites**

Software Engineering 2250a/b and the former Software Engineering 201a/b

### **Instructor:**

**M. Magguilli**

**Office Hours:** By appointment only (arranged at least one day prior)

**E-Mail:** [lmagguil@uwo.ca](mailto:lmagguil@uwo.ca)

## Course Schedule:

### CS2211a Section 001

#### Lecture Times:

- Tuesday 10:30 am – 11:30 am (Personal Development - no in person class)  
Thursday 10:30 am – 12:30 pm (Scheduled class time - student attendance required)

**Location:** Arts and Humanities Building (AHB) - Room 1R40

## Lab Schedule:

Section	Time	Location
002	Tuesday : 11:30 AM – 12:30 PM	Middlesex College. Room 244
003	Friday : 12:30 PM – 1:30 PM	Middlesex College. Room 244
004	Tuesday : 5:30 PM – 6:30 PM	Middlesex College. Room 244
005	Thursday : 4:30 PM – 5:30 PM	Middlesex College. Room 244
006	Wednesday : 12:30 PM – 1:30 PM	Middlesex College. Room 244
007	Wednesday : 2:30 PM – 3:30 PM	Middlesex College. Room 244
008	Friday : 1:30 PM – 2:30 PM	Middlesex College. Room 244
009	Thursday : 3:30 PM – 4:30 PM	Middlesex College. Room 244
010	Wednesday : 5:30 PM – 6:30 PM	Middlesex College. Room 244
011	Thursday : 5:30 PM – 6:30 PM	Middlesex College. Room 244
012	Wednesday : 2:30 PM – 3:30 PM	Middlesex College. Room 244
013	Wednesday : 3:30 PM – 4:30 PM	Middlesex College. Room 244
014	Tuesday : 4:30 AM – 5:30 PM	Middlesex College. Room 244
015	Wednesday : 4:30 PM – 5:30 PM	Middlesex College. Room 244

## Required Course Material:

#### Required Textbook:

- S. Das, *Your UNIX/Linux: The Ultimate Guide*. McGraw-Hill: 3rd edition, 2013
- K.N. King, *C Programming: A Modern Approach*. Norton: 2nd edition, 2008.

#### Recommended Textbooks:

- McGrath, *C Programming*. In Easy Steps. 2<sup>nd</sup> Edition
- Prata, *C Primer Plus*. Sams, 5<sup>th</sup> Edition
- Ray and Ray, *Unix – Visual Quick Start Guide*, 4<sup>th</sup> Edition

## Computing Facilities

Each student will be given an account on the Computer Science Department senior undergraduate computing facility, GAUL. GAUL accounts are automatically created, normally within 24 hours, after enrolment and the username/password would be the same as your UWO email account. If a student is able to log into his/her UWO email but is unable to log into the Gual systems after 3 days of enrolment, please submit a ticket. with Science Technology Services at <https://helpdesk.sci.uwo.ca>. In accepting the GAUL account, a student agrees to abide by the computer science department's *Rules of Ethical Conduct*.

**By taking this course, you are declaring that you meet all technology and software requirements, including access to a reliable internet connection, a webcam, and microphone.**

## Scheduled Lectures:

The class is structured to allow maximum flexibility and options for the student. All notes and class lectures are available in OWL. The in-person classes are designed to provide a deeper background and to augment the materials and content of the course. As such students are required to be prepared for each class in advance of attendance. Students are expected to use the Personal Development time to fulfil their requirement to review the notes and videos prior to class time.

The scheduled lectures for the course use presentation software and appropriate applications software to present the course content. The required course materials supply the course content. Readings and practice exercises will be assigned through OWL. Students are expected to come to class prepared by completing the readings before class.

## Course Topics

The course will address as many of the following topics as time will allow:

- **UNIX Fundamentals:** UNIX vs. Windows; logging on; files and directories; path names, and directory and file structure; editors; shells; I/O redirection; UNIX concurrency (processes); utilities; file permissions and security; regular expressions; shell programming.
- **C programming:** compiling, linking and loading; data types and operators; control structures; formatted I/O; file I/O; connections between I/O and the underlying operating system; function calls; structs; enumerations; arrays; pointers (pointer arithmetics, pointers and arrays, arrays of pointers, pointers to functions); memory management; linked lists and other dynamically allocated data structures; strings; calling C from UNIX; general libraries; standard libraries and headers; the C preprocessor; C program organization.
- **UNIX Tools:** building and managing multi-component programs; the make utility; version control and configuration management; debuggers; code performance and profiling.

By the end of this course, the student will be able comprehend the mechanics of the data structures and the student will be able to utilize these concepts in the C computer language.

## **Classroom Conduct:**

Students are expected to arrive promptly and remain in class until the end of the lecture, so as to not disturb others in the class. The use of laptops, tablet computers, or smart phones *only* to access the course OWL site during lectures and tutorials. No other electronic devices may be used at any time during lectures or tutorials. Any behaviour or activity that may impede the ability of you or other students to learn will not be tolerated and if the behaviour persists the individual(s) involved will be invited to leave the classroom.

Due to the proprietary nature of some of the materials used in the lectures, **no audio recording** will be allowed during any of the class sessions.

## **Email Contact:**

Occasionally email messages may be sent to the entire class or to students individually. Email will be sent to your UWO email address as assigned to you by Information Technology Services (ITS). It is your responsibility to read this email on a frequent and regular basis.

Email contact with the course instructor is encouraged, by sending brief and appropriate message regarding lecture material or assignments. However, please first check the Forums section in OWL to see if the information has already been posted. If you contact the instructor via email or post a question in OWL, you can expect a response in a timely fashion, but not necessarily an instantaneous response. Please use proper, appropriate and respectful English when sending an email message or posting on the course web site.

**NOTE:** Email messages **must** be sent from your university account and **MUST** include:  
“**CS 2211 F21**” in the subject line. (spaces/case do not matter: ex: cs2211f21 works)  
Email messages without **CS 2211 F21**” in the subject line will automatically be trapped and deleted by the instructor’s SPAM filter and will **NOT** be available, read or responded to.

**Do not use ‘respond to’ for any email originating from OWL (announcements, etc.) – ensure the professor’s email is the in the destination and NOT to: [postmaster@owl.uwo.ca](mailto:postmaster@owl.uwo.ca)**

**[ this is very important – please make sure your understand and follow the standards above. ]**

**NOTE:** Please also include a title or topic description of the contents of the email in the subject line.

## Student Evaluation (tentative dates):

Element	Weight
5 Assignments	30%
2 Online Quizzes	20%
10 Labs (out of 12)	10%
Final Exam	40%

To be eligible to obtain a passing mark in the course, the final exam grade **must** be 49% or higher **AND** the weighted assignment average **must** be 49% or higher. There will be **no exceptions** or waiving of this requirement for any reason or circumstance.

## Assignments:

Students are expected to view the lecture materials and complete the online exercises to prepare for the assignments. Once the assignment is completed, all parts of the assignment must be submitted on the OWL site. It is the **student's responsibility** to ensure that all parts of each assignment are correctly uploaded and submitted in OWL, to ensure that the assignment can be marked accordingly.

**Note:** Assignments emailed to the instructor or teaching assistant **will not be** accepted, unless there are extenuating circumstances and prior approval from the instructor.

The following is the tentative assignment schedule (subject to change):

Assignment	Weight	Topic	Due Date (by 11:55 PM)
1	5%	Simple Control Statements	September 22 <sup>nd</sup> , 2021
2	6%	Arrays	October 06 <sup>th</sup> , 2021
3	6%	Sorting	October 20 <sup>th</sup> , 2021
4	6%	Structures and Pointers	November 10 <sup>th</sup> , 2021
5	7%	Lists	November 29 <sup>th</sup> , 2021

The due dates of the assignments are shown in the table above. Please note that all these dates are tentative. The due dates will be confirmed when the assignments are posted on OWL. The dates will coincide with the class progression on subsequent topics.

Where possible, the instructions for each assignment will be posted on the course website at least 1 week in advance of the due date.

If for any reason the assignment schedule given above cannot be adhered to, the assignment marks will be pro-rated. The five (5) assignments are worth 30% of the overall mark for the course. If an assignment must be cancelled by the instructor for any reason, the remaining assignment weights will be prorated to add up to 30%.

## Assignment Marking:

- Assignments will be marked by a TA within 2 weeks of the assignment due date where possible.
- Individual marks and a detailed marking scheme will be posted on the OWL site once marks are returned.
- Questions regarding the marking of assignments should first be directed to the teaching assistant that graded your assignment and then the course instructor assigned to your section if your discussion with the teaching assistant was not satisfactory.
- Requests for mark adjustments will only be considered if they are made within **1 week** of receiving the assignment mark and have been first discussed with the teaching assistant who marked the assignment. **Assignment marks will be final after that date.**
- Requests for mark adjustments will only be considered when they are for adjustments of **5 marks or greater.**

### Important:

To be eligible to obtain a passing mark in the course, the student's weighted assignment average must be **49%** or higher.

There will be **no exceptions** or waiving of this requirement for **any reason or circumstance.**

The due dates of the assignments are shown in the table above. Please note that all these dates are tentative. The due dates will be confirmed when the assignments are posted on OWL. The dates will coincide with the class progression on subsequent topics.

It is the student's responsibility to ensure that the correct version is submitted to OWL. No excuses will be accepted if an incorrect version is submitted instead. Students can resubmit their assignments until the due date. In this case, only the last version will be marked.

Assignments will not be accepted if submitted to the professor's email instead of OWL and **will be deleted immediately** and deemed un-submitted.

Every effort will be made to have assignments marked and handed back within 2 weeks of the hand in date.

### Late Policy for Assignments:

- Assignment will be accepted up to one (1) day late.
- Assignments submitted after 11:55 PM on the due date but before 11:55 AM on the day after the posted due date will be deducted 10% of the total grade.
- Assignments submitted after 11:55 AM on the day after the due date but before 11:55 PM on the day after the due date will be deducted 25% of the total grade.
- Assignments submission will be closed at 11:55 PM on the day after the posted assignment due date.
- No assignments can be submitted to OWL after 11:55 PM on the day after the posted assignment due date.

- An assignment that is more than one (1) day late will not be accepted.
- No extensions will be given for assignments. However, in the event of serious medical or compassionate grounds, a student must follow the procedure for Academic Accommodation for Medical Illness as given above. If an academic accommodation is approved by the Dean's office, the weight of the assignment will be moved to one of the two exams.

Late assignments will have a penalty of 10% or 25% of the maximum mark for the assignment deducted based on time of submission as listed in OWL. Thus, if a student would have received 90% on an assignment, if it was submitted three hours late the student would receive 80%, if it was submitted twenty hours late the student would receive 65%.

### Online Quizzes:

Up to two (2) quizzes will be given online via the OWL platform. The tentative quiz schedule is as follows (subject to change):

Quiz	Weight	Date & Time
1	10%	Thursday - October 19 <sup>th</sup> , 2021 @ 10:30 AM EDT
2	10%	Thursday - November 16 <sup>th</sup> , 2021 @ 10:30 AM EST

Quizzes must be started at the given date and time. Failing to complete the quiz during the given times will result in a 0 grade being entered for the quiz.

**Quizzes are open book but must be done individually** and without the assistance of others. Sharing quiz questions/solutions, completing a quiz for or with another person or otherwise cheating on a quiz will result in a 0% quiz grade for ALL quizzes.

If less than two (2) quizzes are given or a quiz must be cancelled by the instructor for any reason, the weight of the cancelled quiz will be placed on the final exam. **No makeup quizzes will be given.** The weight of a quiz missed due to documented and approved medical or compassionate grounds will be placed on the final exam.

### Final Exam:

No electronic devices are allowed during exams (no iPods, laptops, etc)

**Cell Phones** are **NOT** permitted to **be visible or accessible during any part of the examination period.**

The use of a calculator is not allowed.

Reference notes or Dictionaries of any kind are not allowed.

**Note:** Computer-marked multiple-choice exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

- The date, time and location of final exam will be announced by the Registrar's Office. The final exam will be held during the university final examination period.
- Students requesting a deferred final exam prior to the final exam must supply their Dean's Office with written documentation at **least 2 weeks prior** to the Final Exam.
- In the event of serious medical or compassionate grounds, a student must follow the procedure for Academic Accommodation for Medical Illness as given above.
- A "Recommendation of Special Examination" form must be obtained from the Dean's office, to be eligible to write the deferred final exam.

## **Course Web Page:**

The course website is located within OWL. To access the website, navigate to <http://owl.uwo.ca> and login with your Western University personal computer account (user id and password). Lecture & tutorial videos, assigned readings, notes, assignments and class information will be posted at this site. You are responsible for checking the course site regularly.

New material will be posted each week including video lectures, tutorials and slides. These can be found in the Course Content tab in the OWL course site. Students are expected to complete all weekly tasks including assigned readings and exercises in the week they are assigned and well in advance of any other stated deadlines.

## **Key Sessional Dates:**

Classes begin: September 8, 2021

Reading Week: November 1–7

Classes end: December 8, 2021

## **Contingency plan for an in-person class pivoting to 100% online learning**

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, all remaining course content will be delivered entirely online, asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

## **Student Absences**

### **Academic Consideration for Student Absences**

Students who experience an extenuating circumstance (illness, injury or other extenuating circumstance) sufficiently significant to temporarily render them unable to meet academic requirements may submit a request for academic consideration through the following routes:



- (i) Submitting a Self-Reported Absence (SRA) form provided that the conditions for submission are met. To be eligible for a Self-Reported Absence:
  - an absence must be no more than 48 hours
  - the assessments must be worth no more than 30% of the student's final grade
  - no more than two SRAs may be submitted during the Fall/Winter term
- (ii) For medical absences, submitting a Student Medical Certificate (SMC) signed by a licensed medical or mental health practitioner to the Academic Counselling office of their Faculty of Registration.
- (iii) Submitting appropriate documentation for non-medical absences to the Academic Counselling office in their Faculty of Registration.

Note that in all cases, students are required to contact their instructors within 24 hours of the end of the period covered, unless otherwise instructed in the course outline.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For the policy on Academic Consideration for Student Absences – Undergraduate Students in First Entry Programs, see:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_illness.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf)

and for the Student Medical Certificate (SMC), see:

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf).

### **Religious Accommodation**

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

### **Absences from Final Examinations**

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under [Special Examinations](#)).

## Accommodation and Accessibility

### Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD), which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic\\_Accommodation\\_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf),

## Academic Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy,

[https://www.uwo.ca/univsec/pdf/policies\\_procedures/section1/mapp113.pdf](https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf),

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

**Scholastic offences** are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).

Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Tests and examinations in this course may be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at:

<https://remoteproctoring.uwo.ca>.

## **Ethical Conduct:**

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: [http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).

### **Plagiarism**

All required assignments, quizzes and exams may be subject to submission for textual and metadata similarity review to plagiarism detection software. All assignments, quizzes and exams submitted for such checking may be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of such services are subject to the licensing agreement with The University of Western Ontario. These services and software may include but are not limited to Turnitin (<http://www.turnitin.com>), MOSS, SCANEX, and custom plagiarism detection software developed for the course.

Computer-marked multiple-choice quizzes and exams may be subject to remote proctoring software and submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating. For details on remote proctoring see the final exam section.

Students must write their assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar).

All assignments are individual assignments. You may discuss approaches to problems among yourselves; however, the actual details of the work (assignment coding, answers to concept questions, etc.) must be an individual effort. All assignments will be subject to both content and metadata plagiarism analysis.

All quizzes and the final exam are to be written individually, the content and questions not shared and provided rules followed.

### **Tutors and Outside 'Help' on assignments**

Students may receive the help of a tutor on assignments, so long as the tutor only identifies errors or demonstrates sample problems that are **not** part of the assignment. If the content of your assignment is significantly different than if you had not received help, then this is an indication you may have crossed the line into cheating. Again, if you are unsure about how much help is too much, ask your instructor.

The role of tutoring is to help students understand course material. Tutors should not write any part or all of an assignment for the students who hire them. Tutors should not 'advise' or 'suggest' what is to be entered into an assignment or the solutions to any portion of the assignments. Any aid beyond what you would have received directly from the instructor will be considered an academic offense. Having employed the same tutor as another student is not a legitimate defense against an accusation of collusion, should two students hand in assignments judged similar beyond the possibility of coincidence.

**Academic dishonesty** in assignments includes (but is not limited to):

- Unacceptable collaboration
- What is unacceptable? There is a difference between discussing assignments and solutions with fellow students and working together on the solutions to the point where the work submitted is clearly not individual work. If in doubt, ask your instructor.
- **Copying** of another student's assignment
- **Allowing** another student to copy your work ← *this is also an **Academic Offense***
- Sharing your assignment with another student electronically or otherwise ← *this an **Academic Offense** for **both** students.*
- Using another student's assignment or work as a "template" or "starting point" for your own work. ← *this an **Academic Offense** for **both** students*
- Using sites dedicated to sharing assignment solutions or aiding cheating, including but not limited to Course Hero, OneClass, and Chegg.
- Using code from an external source (text, instructor, course website) where a student's own code is expected (**if in doubt, ask your instructor**)

**Academic dishonesty** in quizzes and exams includes (but is not limited to):

- Writing a quiz/exam with the aid of another person ← *this an **Academic Offense** for **both** students.*
- Sharing quiz/exam questions/answers or using ones sent to/obtained by you.
- Having another person write a quiz/exam for you.
- Failing to follow the specific rules given in the quiz/exam.
- Sharing you screen or virtually taking a quiz/exam with others (e.g. being in an online chat of any kind while taking a quiz/exam).

The penalty for academic dishonesty in any course component is receiving 0% for that component **AND** the possibility of additional penalties as deemed appropriate by the course instructor, department or university including but not limited to an additional penalty equal to the course component, or a failing overall grade being entered for the course. Note that receiving 0% on an assignment may make you ineligible for a passing grade due to the 49% requirement given in the Student Evaluation section. Receiving 0% on the final exam, will make you ineligible for a passing grade in this course.

You are responsible for reading and respecting the Computer Science Department's policy on: Scholastic Offences:

[https://www.csd.uwo.ca/undergraduate/current/policies/scholastic\\_offenses.html](https://www.csd.uwo.ca/undergraduate/current/policies/scholastic_offenses.html)

and Rules of Ethical Conduct:

[https://www.csd.uwo.ca/undergraduate/current/policies/ethical\\_conduct.html](https://www.csd.uwo.ca/undergraduate/current/policies/ethical_conduct.html)

## Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: <https://www.uwo.ca/sci/counselling/>.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at (519) 661-2147 if you have any questions regarding accommodations.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western (<http://www.health.uwo.ca/mentalhealth>) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, <http://westernusc.ca/services>.