

## COMPSCI 3350B Course Outline Winter 2026

### 1. Course Information

#### Course Description – COMPSCI 3350B: Computer Organization

Topics include semiconductor technologies, gates and circuits, buses, semiconductor memories, peripheral interfaces, I/O techniques, A/D conversion, standards, RISC.

#### Antirequisites

ECE 3375A/B

#### List of Prerequisites

Computer Science 2208A/B, Computer Science 2210A/B, Computer Science 2211A/B, and either Computer Science 2209A/B or the former Computer Science 2101A/B.

Unless you have either the prerequisites for this course or written special permission from the Department of Computer Science to enroll in it, you may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on your academic record. This decision may not be appealed.

### 2. Instructor and Contact Information

Instructors	Email	Office	Office Hours
Duff Jones	<a href="mailto:djone5@uwo.ca">djone5@uwo.ca</a>		Wednesday: 12:30 PM to 1:30 PM
TA	TBD	TBD	TBD

#### Email Policy

Students must use their Western ([@uwo.ca](mailto:@uwo.ca)) email addresses when contacting their instructors.

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

You should note that email at the university and through other providers have quotas or limits on the amount of space that is dedicated to each account. Unchecked email may accumulate beyond those limits, and you may be unable to retrieve important messages from the university. Losing email is not an acceptable excuse for not knowing about the information that was sent.

Email contact with the course instructors is encouraged, and we endeavour to reply to messages within 24 hours between Monday and Friday and within 48 hours on Saturday, Sunday, and holidays.

Students can ask questions via email; however, if there are any large, somewhat complicated issues, it is recommended to discuss them during office hours. You **must** use your UWO account for security and privacy reasons.

**NOTE:** In the subject line, please include **[3350]** and include a title or topic description of the contents of the email in the subject line and send e-mails from your @uwo.ca e-mail account. The instructor will be unable to respond to questions about your personal grades, assignment, etc. if they are not sent via a known @uwo.ca e-mail account for security and privacy reasons.

For example, please ensure e-mail looks like this:

From: Student Name <sname123@uwo.ca>  
Subject: [3350] Question about logic gates

and NOT like this:

From: Crazy ALIAS name <super+crazy\_email@weirddomain.tv>  
Subject: RE: RE: FWD: re: Subject FW: Bunch O' Questions

## Office Hours

Office hour locations and times are listed in the table above. Office hours can be used to ask assignment questions, but we encourage students to drop by to ask questions related to course materials as well. There often is not enough time during lecture to answer more complex questions; office hours are the best time for that.

# 3. Course Syllabus, Schedule, Delivery Mode

## Course Topics

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

- Abstraction of machine structures
- Performance metrics and profiling tools
- Hierarchical memory
- MIPS instruction set architecture and SPIM assembler and simulator
- Introduction to logic circuit design
- MIPS single cycle and multiple cycle CPU data path and control
- Instruction level parallelism
- Multicore architecture and thread level parallelism
- GPU architecture

## Learning Outcomes

Upon completion of the course, students will be able to describe modern computer architecture, including

- cache locality;
- memory hierarchy;
- logic gates and switches;
- stateless and state circuits;
- the single cycle data path;
- pipelining; and
- parallel architecture.

## Course Schedule and Delivery

Lecture Section	Instructor	Day and Time	Location
001	Duff Jones	Monday: 9:30 AM – 11:30 AM Wednesday: 10:30 AM – 11:30 AM	

All classes are delivered in person at the times listed above.

## 4. Course Materials

### Recommended Textbook

There is no required textbook in this course, but you may find the following textbooks to be useful:

- J. L. Hennessy and D. A. Patterson, *Computer Architecture: A Quantitative Approach*, 7<sup>th</sup> Edition. Morgan Kaufmann: 2025.
  - This textbook is strongly encouraged for a deeper understanding of the course material.
- J. L. Hennessy and D. A. Patterson, *Computer Organization and Design: The Hardware/Software Interface, MIPS Edition*, 6<sup>th</sup> Edition. Morgan Kaufmann: 2020.
  - This textbook is encouraged for a more practical understanding of the course material. (The *RISC-V Edition* of this textbook is also fine.)

Both textbooks, and their costs, are available at the UWO Bookstore using [this link](#).

### Course Web Page

All course material will be posted to OWL: <https://westernu.brightspace.com/>.

You are responsible for checking the course OWL site regularly for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If you need assistance with the course OWL site, you can seek support on the [OWL Brightspace Help](#) page. Alternatively, you can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

## Technical Requirements

You must have access to a computer onto which you can install MIPS. You must also be able to access OWL.

### *SPIM*

We will be using the SPIM simulator for MIPS. You can download SPIM for Windows, Linux, or macOS at [this link](#).

### *iClicker*

[iClicker](#) will be used as the basis for your participation grade. This software is free for Western students and can be used on laptops, tablets, and smartphones. You must have a device during lecture that can run this software.

For support with iClicker, check out the [WTS page on iClicker](#) or contact iClicker's support team at [iClicker Support](#).

## 5. Methods of Evaluation

### Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below:

Assignments (4)	30%
In-Class Participation	10%
Midterm Test	20%
Final Exam	40%

### Lectures

This course is delivered synchronously. Slides will be provided prior to the lectures, but slides will not contain all course material. You are expected to attend lectures and take your own notes. If absent (e.g., due to illness), you are expected to get notes from a classmate. Office hours provide an opportunity to ask questions related to missed material, but students should not expect the lecture to be re-delivered during office hours.

### *Participation in Lectures*

As mentioned above, it is important that you attend and participate during lectures. Reading slides posted on OWL does not provide the depth of understanding required for upper-year courses. To encourage involvement in class activities, 10% of the course grade is based on participation via in-class activities done using iClicker.

### *How the Participation Grade is Determined*

There are 13 Monday lectures over the course of the semester. One of those is the first day of class (January 5), and one of those is the day of the midterm (March 2). The other 11 Monday lectures will incorporate iClicker.

Your participation grade will be determined by both your attendance and active participation in these Monday lectures (recorded via iClicker). This will be graded as a pass or fail for each **Monday** lecture.

To obtain a passing grade for participation in each lecture, you must:

1. Attend the full lecture **in-person** and on time with a device capable of using iClicker. It is your responsibility to ensure your device is functional and charged before each lecture.
2. Actively participate in any activities, iClicker quizzes, or iClicker polls conducted during the lecture.
3. Answer **at least** 50% of the iClicker questions given during the lecture (the correctness of the answer does not matter).

Of course, you are encouraged to actively participate in all the Monday and Wednesday lectures in the course, but to obtain the full course participation grade, you must pass at least eight (8) of the Monday lectures. If you are sick (or must miss class for some other reason), however, there is some flexibility built into the participation grade.

After missing more than three (3) Monday lectures, you will be required to apply for academic consideration via the [Student Absence Portal](#) using valid documentation. Without an accepted academic consideration, a partial participation grade will be given. For example, if you meet the participation requirements for five (5) lectures, you will receive a participation grade of 6.25% for participation ( $5/8 = 0.625$ ).

With an accepted academic consideration, the weight of any missed lectures will be placed on the final exam.

### ***Consequences of Circumventing the Participation System***

Any attempt to circumvent the participation system or attempt to earn a passing participation grade without attending class is an **academic offence** and will result in an overall participation grade of zero and the offence being reported to the Dean's Office. This includes, but is not limited to, taking any iClicker quizzes outside of the classroom, completing an iClicker quiz for another student, or having someone else complete the quiz for you.

## **Assignments**

There are four assignments, each of which is worth 7.5% of your grade for a total of 30% of the final course grade. You are expected to attend lectures and review reading materials to prepare for assignments.

### **Assignment Schedule (Tentative)**

<b>Assignment</b>	<b>Weight</b>	<b>Due Date (by 11:55 PM)</b>
1	7.5%	Thursday, February 5, 2026.
2	7.5%	Thursday, February 26, 2026.
3	7.5%	Thursday, March 19, 2026.
4	7.5%	Thursday, April 9, 2026.

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 relevant assignment topics. Assignments will be posted at least two weeks prior to the due date.

If for any reason the assignment schedule given above cannot be adhered to, then the assignment marks will be reweighted. The four (4) assignments are worth 30% of the overall mark for the course. If an assignment must be cancelled for any reason, the remaining assignments will be reweighted to add up to 30%.

### ***Assignment Marking***

- Assignments will be marked by a TA within two weeks of the assignment due date where possible.
- Individual marks and a detailed mark breakdown will be posted on the OWL site once marks are returned.
- Questions regarding the marking of assignments should first be **directed to the TA who graded your assignment**. This should be done via email, clearly identifying what rubric element was graded incorrectly and why. If the discussion with the TA was not satisfactory, then you should forward the conversation with the TA to the instructor assigned to your section along with an explanation of why you believe further marks are warranted.
- Requests for mark adjustments will only be considered if they are made **within one week** of receiving the assignment mark and have been first discussed with the TA who marked the assignment. Assignment marks will be final after that date.

### ***Late Coupons & Late Policy***

It is expected that students budget enough time to properly submit their assignments and allow for any unforeseen technological issues. You are expected to regularly back up your assignments and submit well before any deadline.

To allow for flexibility and any unexpected circumstances that may impact your ability to submit assignments a late coupon system is used in this course:

1. Each student will be given **six (6) late coupons** in total for the semester that may be used to submit an assignment one day late per coupon without penalty.
2. You can use **at most 3 late coupons per assignment**.
3. If you submit late and have no late coupons remaining, **a zero grade will be given on the assignment**.
4. If you submit more than three (3) days late, **a zero grade will be given on the assignment** regardless of the number of late coupons you have remaining.
5. Late coupons will **NOT** be replenished. For example, if you use three late coupons on Assignment #1, you will only have three remaining for the rest of the course.
6. Late coupons will be applied automatically when an assignment is submitted late. You are not required to inform the course instructor or TA. If you submit late, one late coupon will be used per 24-hour period.
7. Each late coupon is valid for a 24-hour period only. For example, if an assignment is due on February 3 at 11:59 PM and you submit it on February 4 at 12:00 AM (one minute past 11:59 PM), then this would require one late coupon, as would any submission between 11:59 PM on February 3 and 11:59 PM on February 4. After February 4 at 11:59 PM and up to February 5 at 11:59 PM, two late coupons would be required. After February 5 at 11:59 PM and up until February 6 at 11:59 PM, three late coupons would be required. After February 6 at 11:59 PM, no

more submissions will be accepted, and a zero grade will be given on the assignment regardless of how many late coupons you have remaining.

8. **It is the student's responsibility to keep track of how many late coupons they have available throughout the semester.** An item in the OWL Gradebook will be used to track your late coupons, but **this is not updated live** and may be out of date. In case of a discrepancy, the actual number of coupons used (and not what is listed in OWL) will be used for determining any late penalty.
9. Resubmissions are allowed up to three (3) days after the due date but note **that resubmissions after the deadline will be considered late and require a late coupon**, regardless of when the initial submission was made. The date and time of your most recent resubmission will be used for determining lateness.
10. Late coupons must be used before any special circumstances are considered. **This means that you need to consume all late coupons before applying for academic consideration for an assignment.**
11. **After all late coupons are used, no extensions will be given for assignments** except for in the event of serious medical or compassionate grounds. A student must follow the procedure for Academic Accommodation for Medical Illness as given in this document and provide medical documentation to academic advising.
12. **Late coupons cannot be used on any course component except assignments.**

### Assignment Backups

It is your responsibility to keep up-to-date backups of assignment files in case of system crashes or inadvertently erased files. Students must keep copies of all material submitted, as well as the actual graded assignment, to guard against the possibility of errors in recording marks. It is not safe to discard these materials until you are satisfied that your final mark for the course has been computed properly.

### Examinations

There will be both a midterm and a final exam. The following is the tentative exam schedule (subject to change):

Exam	Weight	Date
Midterm	20%	Monday, March 2, 2026. 9:30 AM – 11:00 AM (During lecture time in class)
Final Exam	40%	Scheduled by the Registrar's Office during the Final Exam Period

### **Permissible Materials During Examinations**

Both the midterm and the final exam are closed book; however, you will be allowed to bring in **one 8.5 x 11 sheet of handwritten notes**. You may write on both sides of the page. Photocopies are not permitted. Handwritten notes written on a tablet and then printed off are also **NOT** permitted. You should contact your instructor regarding any accommodations to this policy for accessibility purposes.

No electronic devices of any kind are allowed.

All exams are to be completed individually, with no assistance or contact with others. Violation of this rule, any other exam rule, or cheating of any kind will result in a zero (0) for the examination and the possibility of additional penalties as deemed appropriate by the course instructor, department, or university. These penalties may include, but are not limited to, a failing grade being entered for the course

### **Midterm**

The midterm will be conducted in person and cover all course material, including assigned readings, lecture slides, and materials covered in assignments **up to (and including) the lecture prior to the midterm (i.e., Wednesday, February 25)**. The actual length of the midterm is 1.5 hours.

More information on the midterm's composition will be provided closer to the date it will be written.

**There is no makeup midterm.** If you have an approved academic consideration via the [Student Absence Portal](#), then the weight of the missed midterm will be placed on the final exam. If you do not have an approved consideration, the midterm grade will be zero (0). **The midterm is the designated assignment for this course, so undocumented absences will not be accepted.**

If your grade on the final exam is higher than the midterm exam, the weight of the midterm exam will be transferred to your final exam. This transfer will only happen if you write the midterm exam; missing the midterm exam without approval will result in a zero grade on the midterm exam regardless of the grade obtained on the final exam.

Any midterm absences must be documented and submitted to academic advising for your home faculty. If the consideration request is approved and covers the correct dates, the weight of your midterm will be moved to the final exam.

### **Final Exam**

The final exam will be conducted in person and cover all course material including assigned readings, tutorials, lecture slides, and materials covered in assignments and lab homework. The final exam will be scheduled by the Registrar's Office during the Final Exam Period. You should not book any travel prior to the Registrar's Office releasing the final schedule.

When a student misses the final exam and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup final exam). See the Academic Calendar for details (under [Special Examinations](#)), especially for those who miss multiple final exams within one examination period.

### **General Information About Missed Coursework**

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs*, posted on the Academic Calendar:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/academic\\_consideration\\_Sep24.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf),



This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage: [https://registrar.uwo.ca/academics/academic\\_considerations/](https://registrar.uwo.ca/academics/academic_considerations/). All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

**Important note:** For course elements without flexibility, the policy permits students to request one absence without proof of documentation. **The midterm exam is excluded from this policy.** Since sufficient flexibility is built into all other course components, all academic consideration requests will require proof of documentation from the relevant academic advising department.

## Use of Generative AI Tools

As the intention of this course is for you to learn how to program, Generative AI tools (e.g., ChatGPT, Copilot, Claude, Gemini) are generally **not permitted**. The use of Generative AI tools will prevent you from learning the course material.

Some **in-class activities** may permit the use of Generative AI with limitations. If allowed, this will be clearly stated alongside any limitations. Unless otherwise noted, you should assume their use is prohibited. (Ask your instructor if you are unsure.)

Any use of Generative AI that has not been approved will be considered an academic offence and referred to the department's Academic Integrity Committee.

## 6. Additional Statements

### Religious Accommodation

When conflicts arise with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible, but not later than two weeks prior to the writing of the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays - <https://www.edi.uwo.ca>

### Academic Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, 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).

## General Academic Policies

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

**Use of @uwo.ca email:** 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 email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

**Requests for Relief** (formally known as “appeals”)

Policy on Request for Relief from Academic Decision:

[https://uwo.ca/univsec/pdf/academic\\_policies/appeals/requests\\_for\\_relief\\_from\\_academic\\_decisions.pdf](https://uwo.ca/univsec/pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf)

Procedures on Request for Relief from Academic Decision (Undergraduate):

[https://uwo.ca/univsec/pdf/academic\\_policies/appeals/undergrad\\_requests\\_for\\_relief\\_procedure.pdf](https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf)

## Scholastic Offences

Policy on Scholastic Offences:

[https://uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_offences.pdf](https://uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_offences.pdf)

Procedures on Scholastic Offences (Undergraduate):

[https://uwo.ca/univsec/pdf/academic\\_policies/appeals/undergrad\\_scholastic\\_offence\\_procedure.pdf](https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf)

Computer Science Department 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)

Computer Science Department Policy on Ethical Conduct:

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

## Use of Electronic Devices During Assessments

In courses offered by the Faculty of Science, the possession of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to, mobile phones, smart watches, smart glasses, and wireless earbuds or headphones.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at your desk, on your person, or within reach during an assessment will be treated as a *scholastic offence*, even if the device is not in use.

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is your responsibility to review and comply with these expectations.

## Similarity Checking Software

All assignments may be subject to similarity checking software (e.g., MOSS) to detect plagiarism.

## In the Event of a Lockdown

If, for any reason (e.g., a health lockdown), this course is moved online, the midterm and final exam will 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>.

## **Support Services**

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

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

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at [https://www.uwo.ca/health/student\\_support/survivor\\_support/get-help.html](https://www.uwo.ca/health/student_support/survivor_support/get-help.html).

To connect with a case manager or set up an appointment, please contact [support@uwo.ca](mailto:support@uwo.ca).

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. If you have any questions regarding accommodations, you may also wish to contact Accessible Education at [http://academicsupport.uwo.ca/accessible\\_education/index.html](http://academicsupport.uwo.ca/accessible_education/index.html)

Learning-skills counsellors at Learning Development and Success (<https://learning.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.

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 Student Experience website to manage your academics and well-being: <https://studentexperience.uwo.ca>.

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