Course Syllabus

CP212 Windows Application Programming
Physics & Computer Science, Faculty of Science, Waterloo Campus
Fall | 2019

I acknowledge that in Kitchener, Waterloo, Cambridge and Brantford we are on the traditional territory of the Neutral, Anishnawbe, and Haudenosaunee peoples.

Instructor Information

Rick Henderson | Office N2084A
Contact Information – Email: rhenderson@wlu.ca
Weekly Office Hours**:** M & W after class. Other times by appointment.

Note: If you have questions during the day you should see your Lab Coordinator.

Teaching Philosophy: While I have a lot of information I can give to you, I can also act as a guide to help you find what you need, avoid common pitfalls, help you get to where you want to go – academically speaking.

Lab Instructors

Rick Magnotta | Office N2091
Contact Information – Email: rmagnotta@wlu.ca
Weekly Office Hours: By Appointment

Course Information

This course is designed for students who have a basic understanding of spreadsheets, word processors, and databases as well as introductory programming experience. The course introduces methods to automate repetitive tasks and create user-friendly applications in spreadsheets, word processors, and databases using the powerful macro language, Visual Basic for Applications (VBA).

Topics include: a review of programming constructs such as data types, looping, conditional statements, and arrays; the design of graphical interfaces with the typical "look and feel" of Windows software; the design of dialog boxes with controls and event handling code that responds to user input; automating tasks; consolidating data; providing user friendly reports.

3 lecture hours, 1 lab hour

Credit: 0.50

Prerequisite: CP102 and previous programming experience, or CP104

Section	Days	Times	Room	Instructor
Lecture A	MW	05:30 pm - 06:50 pm	N1001	Mr. Rick Henderson
Lab L1	M	12:30 pm - 01:20 pm	BA113	Mr. Rick Magnotta
Lab L2	M	01:30 pm - 02:20 pm	BA113	Mr. Rick Magnotta
Lab L3	M	10:30 am - 11:20 am	BA113	Mr. Rick Magnotta
Lab L4	T	11:30 am - 12:20 pm	BA113	Mr. Rick Magnotta

Course Overview and Approach

This course will be presented as three lectures per week and one, 50-minute lab per week. During lab students will receive a short lesson from the lab instructor and then may be given tasks to complete which will make up the Lab portion of their course marks. Material on the midterm and final exam will come primarily from the lecture and textbook material but may contain coding questions based on lab material.

This course is taught using Visual Basic for Applications (VBA) which is the language of macros in Microsoft Office and other popular software packages in several disciplines. The current text — VBA for Modelers — focuses on Excel and financial applications, but the skills learned will apply to all uses of VBA and programming in general.

We will look at developing “apps” for Excel, moving data between Word, Excel, and Access as well as creating user interfaces to simplify working in Microsoft Office applications and data automation. Coverage of Word and PowerPoint, as well as other non-Microsoft products may be considered as time allows. The instructor will seek feedback from the students as to what topics should take priority and give it due consideration given the course requirements and objectives.

There are different levels of programmers with different levels of skills. Some organizations will not be able to afford a team of full-time software developers or expensive development environments for high-level languages. Office productivity software is commonplace and, in many instances, it has been found that developing in VBA can be faster and more cost-effective than contracting the development out, or even having an in-house developer team complete the required project in a language such as C or Java.

Lecture notes may be posted. However, I would like you to have the opportunity for enhanced learning by taking your own notes. Research has shown that taking notes improves learner retention. It is suggested you get to know the people in your class so you can borrow notes from them if you miss class. Lectures are usually based off the textbook material, but for any material not covered in the text I will post notes for your review. Purchasing your own copy of the textbook is highly recommended. Many students from the past term remarked on how useful the textbook was. This is especially important if you have little programming background or experience. For help on taking notes during lectures, consider visiting the people at Learning Services.

It is recommended that you print out this syllabus for handy reference during the course.

Course Goals and Learning Outcomes

This course builds on students' existing programming skills by utilizing a common office application suite as a development platform. You must have taken at least one programming course in high school or university, as programming experience is assumed. The official prerequisites are either CP102 **OR** CP104.

By the end of this course you should be able to:

- Write macros in Microsoft Office of at least 5 lines to automate tasks and improve productivity.
- Develop full VBA programs to convert data between different formats and applications.
- Explain three benefits of VBA as a development platform.
- Create custom windows or forms-based applications using VBA userforms.

Student Evaluation

Assignments 30%
Participation 10%
Midterm 10%
Lab 30%
Final Exam 20%
Total 100%

Regarding Assignments

Assignments are worth 30% of your final grade. Each of the first 4 assignments is worth 5.1%. Assignment 5 is worth more, at 9.6% of the final grade.

No cheating. No group work. Individual assignments only. Code from the web may not be used, as you did not write it.

I want to make it clear that a **second year programming course** is about learning to solve problems using computer code. It is not about how to search the web for answers and then try to figure out why it doesn't work. Copying from the web outside of course materials is not permitted, and course materials are meant as a guideline that should be followed, not code that should be copied and pasted.

Assignment Dates

Assignment	Due Date	Weight toward Final Mark
A1	Friday, September 27, 11:45pm	5.1 %
A2	Friday, October 11, 11:45pm	5.1 %
A3	Friday, November 1, 11:45pm	5.1 %
A4	Friday, November 15, 11:45pm	5.1 %
A5	Friday, November 29, 11:45pm	9.6%

*** NEW * Participation grades will be based on your interaction during lectures, as well as in the discussion groups in MyLearningSpace. This will be a new activity for the course so please bear with me as I find ways to make the course more engaging and enjoyable for everyone.**

More details about the participation grades will be provided during the first week of class.

Programming Style & Academic Misconduct

Even with programming, each programmer has a coding style that is almost uniquely their own. It is very easy to notice when two people submit the same code, so make sure you complete your assignments on your own.

Discussion and helping each other is good. Giving answers or giving pieces of code is not, and is considered an academic misconduct.

Your assignments must be uploaded to MyLearningSpace before the due date. Do **not** zip your files, just upload the .xlsm or appropriate files.

Any file compressed using WinRAR or will receive a mark of 0. I do not have WinRAR on my computer and won't bother installing it just because you feel like using it.

CP212 Programming Style Guidelines

Your submitted files should always be **yourNetworkUsername_assignmentNumber** (ie: hend4820_A1.xlsm).

Imagine that every single one of your assignments will be used by a user of moderate computer experience, who is not interested in cute or funny comments on your spreadsheet or written on the buttons.

All modules should begin with these lines of code:

```
Option Explicit
' ==== CP212 Windows Application Programming ===============+
' Name: Your Name
' Student ID:
' Date:
' Program title:
' Description:
'============================================================+
```

A file called **task_template.xlsm** can be found in MyLearningSpace under **Content**, in a module called **Example Files**.

For assignments, your programs must be clearly commented. Include comments that explain what each sub, module, and function do, and explain most lines of code except for those that are extremely simple. The line**: i = i + 1** does not need a comment saying that it adds 1 to i.

Marks may be deducted from the Visual Appearance / Aesthetics area of the marking scheme/rubric or from the total as a whole (but generally never twice for the same problem) for the following:

- bad programming practice
- poor use of comments (not too few, not too many)
- bad cell formatting (not formatting values as Currency when they clearly are)
- not using modular programming where appropriate
- on userforms, not clearly explaining what type of data is expected from the user if not obvious (for example, entering interest rates as percent or decimal values)
- results in message box is poorly formatted (no spacing, bad punctuation etc.)

- button text is unreadable, missing or inappropriate
- numeric results in a spreadsheet should be in separate cells than the text that describes them (sample)

For more ideas on user interface design (and to avoid losing marks on your assignments) read Avoiding Flaws in User Interface Design.

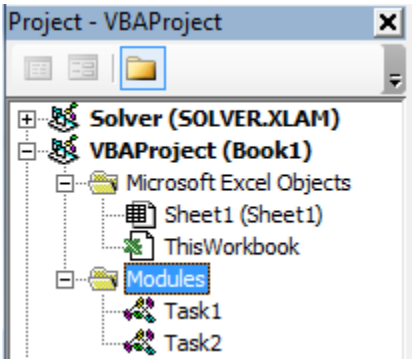
Lab Policy

During lab you will be asked to complete several short tasks which usually require a solution to be coded using VBA. Since the labs are only 50 minutes long, you will be asked to work on your tasks until they are completed, test them to make sure they work correctly, and then raise your hand to have your tasks marked.

Tasks will not be remarked. Make sure it is correct to the best of your abilities before you raise your hand to be marked.

It will be helpful to keep the code for each task in a separate code module to allow marking of the code to be completed quickly.

Each programming task should have a button placed on the worksheet (if appropriate) to execute the macro/subroutine that solves the problem.



When completing your assignments, make sure you store your code in modules according to code function, and clearly name the modules according to the code that is located inside. You might for example, have modules called “FileCode” or “DataValidation” or some other grouping appropriate for the assignment.

If the assignment was just to write code for a car loan application, the module might be called “Car Loan”.

Modules can be exported and reused in other projects by importing them, so consider writing your code in a modular fashion that makes this easier to accomplish. This will be covered later in the course and takes some experience to get used to.

Guidelines for Technology use During Class and During Course Assessment

Adhering to the University’s policy on the use of electronic devices (Policy 9.3), it is important for you to realize that the use of electronic devices such as cellphones, laptops, and tablets for non-academic use during lectures, labs, and assessments is prohibited.

Answering messages, using social networking sites, or gaming are distracting practices that reduce the ability for you to learn the material that is provided. You are a distraction to others in the room as well as the instructor, so electronic devices will only be used for academic purposes.

I'll request that your cellphone is turned off and put away during lectures, labs, and midterms so you do not distract others, and so that your potential for learning is increased. This also helps maintain academic integrity by removing possible avenues for cheating.

If you have personal reasons that require the use of a cellphone for emergency contact reasons, please contact me to discuss them so we can make appropriate arrangements.

Note that it is against the examination policy to have your cellphone with you at your desk during final exams.

Copy From Web = Academic Misconduct

This is a second-year programming course and you are expected to learn how to program in VBA by the end of the course. **The textbook should be your primary reference.** You should never have to use Google or other search engine to find answers to your programming problems, because the required code is either in your textbook or the course notes, or you are to use basic programming techniques to develop solutions to the problems presented.
Copying source code (programming code) from the World Wide Web is considered an Academic Misconduct and will not be tolerated. Under no circumstances should your assignments or final project contain code that was found on the World Wide Web. If you are not sure how to complete a task in VBA, please consult your professor or lab instructor.

There are many reasons why copying from the Internet is prohibited:

- future employers may prohibit use of code that was not written by its employees
- the code may be incorrect and require more time to debug than to write on your own
- you could be infringing on someone else's copyright if they did not give you permission
- if you don't figure out the solution yourself, you won't become a better programmer
- it is an academic misconduct to present someone else's work as work that you have created

Please visit this presentation online for more details regarding Academic Misconduct:
http://www.slideshare.net/RickHendersonLaurier/academic-misconduct-in-computer-programming-courses-in-higher

Instructional Design Elements

One of my interests is considering how to teach effectively, and the different techniques that can be used to help students learn. I sometimes do unusual things in the course or at least how parts of the course are presented.

This term, I'd like you to do reflective writing at different points throughout the course that will help you learn the material with better understanding and recall. You'll be using the Discussion feature in MyLearningSpace to talk about what we've learned, think about what we've learned, and learn from each other.

Near the end of the term (potentially as part of your final assignment) you will be asked to write a letter to the future! You will be asked to think about what you have learned in the course and what you think students coming into the course might want to know. You can include things that you would have wanted to know when you started the course.

Course Tools and Learning Materials

Textbook – VBA for Modelers, 5th Edition - Developing Decision Support Systems with Microsoft Office Excel
Course Management Page – http://mylearingspace.wlu.ca
Learning Services (writing centre, math help, academic advising, study skills/supplemental instruction) – http://www.wlu.ca/learningservices

University and Course Policies

1. **Special Needs:** Students with disabilities or special needs are advised to contact Laurier's Accessible Learning Centre for information regarding its services and resources. Students are encouraged to review the Academic Calendar for information regarding all services available on campus.

2. **Plagiarism:** The University has approved the following wording for inclusion on all course syllabi about the use of the institutionally supported plagiarism software tool. "Wilfrid Laurier University uses software that can check for plagiarism. If requested to do so by the instructor, students are required to submit their written work in electronic form and have it checked for plagiarism." (Approved by Senate May 14, 2002)

   In addition to the statement above you may wish to add the following text about academic integrity.

   Academic Integrity: Laurier is committed to a culture of integrity within and beyond the classroom. This culture values trustworthiness (i.e., honesty, integrity, reliability), fairness, caring, respect, responsibility and citizenship. Together, we have a shared responsibility to uphold this culture in our academic and non-academic behaviour. The University has a defined policy with respect to academic misconduct. As a Laurier student you are responsible for familiarizing yourself with this policy and the accompanying penalty guidelines, some of which may appear on your transcript if there is a finding of misconduct. The relevant policy can be found at Laurier's academic integrity website along with resources to educate and support you in upholding a culture of integrity. Ignorance is not a defense.

3. **Classroom Use of Electronic Devices:** State your classroom practice and any consequences for student failure to comply – see Policy 9.3 (Approved by Senate March 8, 2012).

4. **Late Assignment Policy:** Specify any penalties that will be assessed when deadlines for the completion of course components are not met (Approved by Senate May 23, 2012). Refer to the Handbook on Undergraduate Course Management for more information.

5. **Final Examinations:** Students are strongly urged not to make any commitments (i.e., vacation) during the examination period. Students are required to be available for examinations during the examination periods of all terms in which they register. Refer to the Handbook on Undergraduate Course Management for more information.

6. **Foot Patrol, the Wellness Centre, and the Student Food Bank:** The University approved the inclusion of information about select wellness and safety services and supports on campus in the course information provided to students. (Approved by Senate November 28, 2011.) Specific language (by campus) is provided below.

Multi-campus Resource:

- Good2Talk is a postsecondary school helpline that provides free, professional and confidential counselling support for students in Ontario. Call 1-866-925-5454 or through 2-1-1. Available 24-7.

Kitchener/Waterloo Resources:

- Waterloo Student Food Bank: All students are eligible to use this service to ensure they're eating healthy when overwhelmed, stressed or financially strained. Anonymously request a package online 24-7. All dietary restrictions accommodated.

- Waterloo Foot Patrol: 519.886.FOOT (3668). A volunteer operated safe-walk program, available Fall and Winter daily from 6:30 pm to 3 am. Teams of two are assigned to escort students to and from campus by foot or by van.

- Waterloo Student Wellness Centre: 519-884-0710, x3146. The Centre supports the physical, emotional, and mental health needs of students. Located on the 2nd floor of the Student Services Building, booked and same-day appointments are available Mondays and Wednesdays from 8:30 am to 7:30 pm, and Tuesdays, Thursdays and Fridays from 8:30 am to 4:15 pm. Contact the Centre at x3146, wellness@wlu.ca or @LaurierWellness. After hours crisis support available 24/7. Call 1-844-437-3247 (HERE247).

Important Dates

Assignments

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Midterm

Online (time available in class): Wednesday, October 23, 2019.
The midterm will be available on MyLearningSpace from 9am – 9pm. There will be time given in class to write your exam, but you will need to bring your own laptop that can connect to the Laurier Wifi network. Note that the best way to connect to the wifi network is to use Eduroam.

The midterm will be a mix of multiple choice and short answer questions, with both theoretical questions and coding questions.

Final Exam

The exam period is December 7 – December 20 so do not book any trips until after the exam period.

The final exam will also be completed via MyLearningSpace. We will discuss the exact timing in class. Otherwise assume it will be available the week of Dec 7 – 14.

The midterm will be a mix of multiple choice and short answer questions, with both theoretical questions and coding questions.

The final exam will be available for you to complete on your own time via MyLearningSpace. It is recommended you complete the final exam from a campus computer connected to the Laurier network via network cable. In all cases, save your work frequently.