**Department of Computer Science**
176 Thorvaldson Building
110 Science Place, Saskatoon, SK, S7N 5C9, Canada
Telephine: (306) 966-4886, Facsimile: (306) 966-4884

UNIVERSITY OF SASKATCHEWAN

CMPT 113.3-02A/02B
Winter 2015-2016

## Course Syllabus
## CMPT 113.3: Computing Using EXCEL and VBA

### Course Description

An introduction to the fundamentals of programming using the `Visual Basic for Applications` (VBA) language in `Excel`. An emphasis is placed on learning many important concepts used to create useful computer programs in `Excel`. Examples of some concepts include arrays, procedures, and functions. This course is mostly intended for engineering students, and therefore, some introductory numerical methods and engineering applications are presented. Some graphical user interface (GUI) design concepts are also introduced.

| | |
|---|---|
| **Prerequisite(s):** | Mathematics B30 or Foundations of Mathematics 30 or Pre-Calculus 30 |
| **Class Time and Location:** | Lectures-> Tue & Thu, (10:00am–11:20am, ARTS 263) |
| | Tutorials-> Tue(2:30pm–3:50pm), Wed(6:30pm–7:50pm), Thu(1:00pm–2:20pm), THORV S320 |
| **Website:** | http://moodle.cs.usask.ca/ |

### Instructor Information

| | |
|---|---|
| **Instructor** | Dr. Ekta Walia Bhullar |
| **Contact:** | Email: ewb178@mail.usask.ca |
| **Office Hours:** | Location: Third floor Spinks, Undergraduate Computer Science Lab, |
| | Hours: Tue & Thu 2:00pm–3:30pm |

### Course Learning Outcomes

By the end of this course, students should be able to complete the following tasks:

- Students will complete a variety of tasks using Microsoft Excel.

- Given a problem, students will be able to create a set of instructions in plain language, that when followed will result in a correct solution to the problem.

- Students will design computer programs using VBA in `Excel` to execute a set of instructions to solve a given problem.

- Given a sample of VBA code, students will be able to correctly anticipate the outcome of the code or identify incorrect VBA syntax.

### Student Evaluation

**Grading Scheme**

| | |
|---|---|
| 5 Equally-Weighted Assignments | 25% |
| Midterm Exam (February 12 in class) | 25% |
| Final Exam | 50% |
| Total | 100% |

**Criteria That Must Be Met To Pass**

Students must write the final exam in order to pass the course. If a student does not write the final exam, the student will receive a total grade of at most 49%.

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**Attendance Expectation**

- Attend every class and be prepared to participate. There is no penalty for poor attendance. However, attendance is an important factor in successfully completing the course. Students will be expected to understand concepts introduced and discussed in class. Students will also be asked to participate in class activities using many of the course concepts. These activities are designed to help improve the understanding of important course material.

- Attend all tutorial sessions. These sessions provide students an opportunity to practice concepts learnt in class. During the session, tutorial instructors will review course concepts and answer student questions. Students will also be given an opportunity to work on tutorial exercises and assignments. Due to time constraints, it is possible that some concepts will be introduced in tutorial sessions and not during lectures. Material introduced in tutorial sessions may be the subject of assignment questions or tested on either the mid-term or final examination.

**Final Exam Scheduling**

The Registrar schedules all final examinations, including deferred and supplemental examinations. Students are advised not to make travel arrangements for the exam period until the official exam schedule has been posted.

**Note: All students must be properly registered in order to attend lectures and receive credit for this course.**

## Textbook Information

**Required Text**

- J. Walkenbach, Micorsoft Excel 2013 Power Programming with VBA, 2013 (ISBN: 978-1-118-49039-6).

## Lecture Schedule

| Week | Topics |
|------|--------|
| Jan 05–Jan 08 | <ul><li>Course outline and introduction</li><li>Overview of `Excel`, `Excel` functions, and `Excel` macros</li><li>`Excel` file types</li></ul> |
| Jan 11–Jan 15 | <ul><li>Elements of pseudo code and flowcharts</li><li>Solving problems with pseudo code and flowcharts</li></ul> |
| Jan 18–Jan 22 | <ul><li>VBA Editor</li><li>Components of a VBA program</li><li>Using objects in VBA</li><li>Variables and expressions</li><li>Input/output</li></ul> |
| Jan 25–Jan 29 | <ul><li>String operations</li><li>Conditional statements-> If-Then-Else, ElseIf</li><li>Loops</li></ul> |

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| | |
|---|---|
| Feb 1–Feb 5 | <ul><li>Arrays, matrices, multi-dimensional arrays</li><li>Testing and debugging</li></ul> |
| Feb 8–Feb 12 | <ul><li>Review (if time permits)</li><li>**Midterm on February 12 in class**</li></ul> |
| Feb 15–Feb 19 | <ul><li>Reading week</li></ul> |
| Feb 22–Feb 26 | <ul><li>Sub procedures</li><li>Functions</li><li>Variable scope</li></ul> |
| Feb 29–Mar 4 | <ul><li>Recursion</li><li>User-defined types in VBA</li></ul> |
| Mar 7–Mar 11 | <ul><li>File input and output</li><li>Sort methods</li><li>Search methods</li></ul> |
| Mar 14–Mar 18 | <ul><li>Some numerical methods in `Excel`</li></ul> |
| Mar 21–Mar 25 | <ul><li>Plots and charts of data</li></ul> |
| Mar 28–Apr 1 | <ul><li>User forms in `Excel` (if time permits)</li><li>Active X controls in `Excel` (if time permits)</li></ul> |
| Apr 4–Apr 8 | <ul><li>Review for final exam (if time permits)</li></ul> |

## Course Overview

Students who complete this course will be able to:

- Apply their basic programming skills to build applications for practical situations.

- Build on the knowledge of VBA to learn the basics of any other computer programming language.

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# Policies

### Late Assignments

Late assignments will not be accepted. Students should ensure all assignments are submitted by the due date posted for the assignments.

### Missed Assignments

Assignment extensions will only be granted for medical reasons or exceptional circumstances. Students should be prepared to show evidence for reason given. Students should contact the instructor for an extension before the assignment due date. Requests for extensions after the assignment due date will not be considered.

### Missed Examinations

1. Students who miss an exam should contact the instructor as soon as possible. If it is known in advance that an exam will be missed, the instructor should be contacted before the exam.

2. "A student who is absent from a final examination due to medical, compassionate, or other valid reasons, may apply to the College of Arts and Science Undergraduate Student's Office for a deferred exam. Application must be made within three business days of the missed examination and be accompanied by supporting documents. Deferred exams are written during the February mid-term break for Term 1 courses and in early June for Term 2 and full year courses."

   (http://artsandscience.usask.ca/undergraduate/advising/strategies.php)

### Incomplete Course Work and Final Grades

"When a student has not completed the required course work, which includes any assignment or examination including the final examination, by the time of submission of the final grades, they may be granted an extension to permit completion of an assignment, or granted a deferred examination in the case of absence from a final examination.

Extensions past the final examination date for the completion of assignments must be approved by the Department Head, or Dean in non-departmentalized Colleges, and may exceed thirty days only in unusual circumstances. The student must apply to the instructor for such an extension and furnish satisfactory reasons for the deficiency. Deferred final examinations are granted as per College policy.

In the interim, the instructor will submit a computed percentile grade for the class which factors in the incomplete coursework as a zero, along with a grade comment of INF (Incomplete Failure) if a failing grade.

**In the case where the student has a passing percentile grade but the instructor has indicated in the course outline that failure to complete the required coursework will result in failure in the course, a final grade of 49% will be submitted along with a grade comment of INF (Incomplete Failure).**

If an extension is granted and the required assignment is submitted within the allotted time, or if a deferred examination is granted and written in the case of absence from the final examination, the instructor will submit a revised assigned final percentage grade. The grade change will replace the previous grade and any grade comment of INF (Incomplete Failure) will be removed.

A student can pass a course on the basis of work completed in the course provided that any incomplete course work has not been deemed mandatory by the instructor in the course outline and/or by College regulations for achieving a passing grade." (http://policies.usask.ca/policies/academic-affairs/academic-courses.php)

For policies governing examinations and grading, students are referred to the Assessment of Students section of the University policy "Academic courses: class delivery, examinations, and assessment of student learning" (http://policies.usask.ca/policies/academic-affairs/academic-courses.php)

### Academic Honesty

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the

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policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals subsection of the University Secretary Website and avoid any behaviour that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct, http://www.usask.ca/university_secretary/honesty/StudentAcademicMisconduct.pdf, as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals, http://www.usask.ca/university_secretary/honesty/StudentNon-AcademicMisconduct2012.pdf.

Academic honesty is also defined and described in the Department of Computer Science statement on Academic Honesty: http://www.cs.usask.ca/students/academic-honesty/index.php.

For more information on what academic integrity means for students see the Student Conduct & Appeals subsection of the University Secretary Website at: http://www.usask.ca/university_secretary/pdf/dishonesty_info_sheet.pdf

**Examinations with Disability Services for Students (DSS)**

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Disability Services for Students (DSS) if they have not already done so. Students who suspect they may have disabilities should contact DSS for advice and referrals. In order to access DSS programs and supports, students must follow DSS policy and procedures. For more information, check http://www.students.usask.ca/disability/, or contact DSS at 966-7273 or dss@usask.ca.

Students registered with DSS may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through DSS by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by DSS.