Course Outline

Faculty of Science and Technology

COURSE CODE (ID):	CMPS 1134		
COURSE TITLE:	Fundamentals of Computing		
CREDITS:	3		
SECTION:	O1		
COURSE MODALITY:	Online		
COURSE MODALITY TYPE:	X **Synchronous**	☐ Asynchronous	☐ N/A
COURSE INSTRUCTOR:	Dr. Kieran Ryan		
PROGRAM:	BINT		
SEMESTER:	2020-1		
CLASS DAYS:	Monday/Wednesday		
CLASS TIME:	9:30-10:45		
CLASS VENUE:	Online		
COMMUNICATION TOOL:	☐ Zoom	X **Google Meet**	☐ N/A
COURSE PLATFORM:	X **MOODLE**	☐ Google Classroom	☐ N/A
PRE-REQUISITES:	NA		
	NA		
CO-REQUISITES:	NA		

FIELD TRIP(S):	☐ Yes ✗ No
OFFICE LOCATION:	Jaguar/JAG-D5, Belmopan
OFFICE/VIRTUAL HOURS:	Monday - Sunday – 1:00pm - 3:00pm or by appointment
TELEPHONE:	Office: 822-1000 Ext. 512
E-MAIL ADDRESS:	kryan@ub.edu.bz
RESOURCES:	
REQUIRED:	Brookshear, J.G. (2012). *Computer Science: An Overview*(11th ed.). Boston, Massachusetts: Pearson.
RECOMMENDED:	NA
OTHER:	Notes and other resources for the course are published under CMPS1134 on the IT Moodle site (doit.ub.edu.bz)
COURSE DESCRIPTION:	This course is an introduction to the fundamentals of Computer Science that will provide students with a foundation for future courses in Computer Science. The course is a broad survey of the discipline through topics that allow students to understand the capabilities of computer systems in terms of: the computer architecture; operating systems and computer networks; software and software development; data organization and visualization; and the potential of computing machines.

Course Intended Learning Outcomes (CILOs)

Upon successful completion of this course, students will be able to:

1. Discuss several important application areas of computer science which include Data, Operating Systems, Networking, Internet, Algorithms, Programming Languages, and Software Engineering;
2. describe and differentiate between the major issues in several sub disciplines of computer science that include: Computer Architecture, OSs, Networks, Software, Data, and the Potential of Machines;
3. analyze algorithmically, classify problems into a type and choose a suitable algorithmic approach for yielding a solution, and phrasing solutions to such problems in a logical and precise way;
4. construct programs using computer languages to accomplish a variety of tasks and write clear and concise documentation for such programs;
5. construct data representations using lists, scalars, and trees; and evaluate and defend their choices;
6. compare the complexity of solutions and accurately evaluate the relative costs of the solutions.

Modes of Instruction

In this course we will utilize the following methodologies: Presentation aided lectures, practical activities, and service learning activities complemented with discussions and explanations provided during the execution of each of the activities. In each of the sections, students will be assigned specific activities

related to the topics being covered. These assignments will help students to get extra practice and will enable them to fully apply their learning.

During the semester, students may be requested to work in a project involving the combination of all that they learn to be submitted at the end of the course.

Course Schedule

The following schedule is ***tentative*** and may be modified as necessary to accomplish the course objectives:

Date	Topics/Sub-topics	Teaching Strategies and Activities	Readings and Assignments	Assessment and Due Dates
Week 1	Course Introduction, Outline and Logistics	Lectures, discussions	Course Outline, Course Schedule, Moodle site resources	
Fundamentals of computer architecture				
Week 1	Introduction	Lectures, discussions, research	Chapter 0[1] Moodle site resources	Quiz 0
Week 2	Data Storage	Lectures, discussions, research	Chapter 1[1] Moodle site resources	Quiz 1
Week 3	Data Manipulation	Lectures, discussions, report, programming, presentation	Chapter 2[1] Moodle site resources	Quiz 2
Operating systems and network				
Week 4	Operating Systems	Lectures, discussions, research	Chapter 3[1] Moodle site resources	Quiz 3
Week 5	Networking and the Internet	Lectures, discussions, research	Chapter 4[1] Moodle site resources	Quiz 4
Week 6				Test 1: Chapter 0-4[1]
Software and software development				
Week 7	Algorithms	Lectures, discussions, research	Chapter 5[1] Moodle site resources	Quiz 5
Week 8	Programming Languages	Lectures, discussions, research	Chapter 6[1] Moodle site resources	Quiz 6
Week 9	Software Engineering	Lectures, discussions, research	Chapter 7[1] Moodle site resources	Quiz 7

[1] Brookshear J.G. (2012), Computer Science: An Overview (11th ed.). Addison Wesley

Data organization and visualization				
Week 10	Data Abstractions	Lectures, discussions, research	Chapter 8[1] Moodle site resources	Quiz 8
Week 11				Test 2: Ch 5-8[1]
Week 12	Database Systems	Lectures, discussions, research	Chapter 9 Moodle site resources	Quiz 9
Week 13	Computer Graphics	Lectures, discussions, research	Chapter 10[1] Moodle site resources	
Week 14	Artificial Intelligence	Lectures, discussions, research, group project	Chapter 11[1] Moodle site resources	Quizzes 10/11
Week 15		WRAP UP/REVIEW		Test 3: Ch 9-11[1] Project Service
Week 16		STUDY DAY		
Week 17		FINAL EXAMS		

NOTE: Moodle Site resources include but are not limited to: Supplementary Notes; and Assignment, Project, and Practical Activities Specifications.

Methods of Assessment

Methods of assessment will include quizzes, tests, assignments, service learning activities, a group project, and a final exam.

Each chapter includes a quiz provided as a tool for students to monitor their progress and understanding of the material covered. Students are allowed multiple attempts and MUST continue to take the quizzes until they score a minimum of 70%. Students MUST pass all quizzes prior to the test date for the test that includes the chapters covered. For example, students will not be allowed to take Test 1 on the test date if they have not passed Quizzes 1 – 4. The same goes for Tests 2 and 3. If tests are not taken on the date and time prescribed in the course outline arrangements must be made with the lecturer to take a makeup test. The lecturer will determine the maximum grade that the student will be graded out of in these cases.

Each student will be given an individual assignment to aid in the accomplishment of the course objectives. The assignment will be a 5 minute presentation of a central concept covered in a chapter. The presentation will be done in Google Slides. It will be Shared to the University of Belize Email System.

The link to the presentation will be submitted to the Assignment page in Moodle. Students will then screen and voice record themselves presenting the slides. The recording will be uploaded to Google Drive and Shared to the University of Belize Email System. The link will be posted together with the link to the presentation in the same Assignment page in Moodle.

Students will work in teams on the final project. The team size is 5. During class periods, time may be allocated for the teams to work on their group projects.

There will be 10 quizzes given during the course. Students must attempt and pass all quizzes, however the grades of these quizzes will not be included in the students' final grade for the course.

Three tests will be administered; they will consist of multiple-choice and structured/ short-answer questions. The average score on the tests will account for 30% of the final grade.

The project will account for 35% of the course total. The assignment will be worth 5%.

There will be a comprehensive final examination, consisting of short-answer, multiple-choice, and true-false questions. The final examination score will account for 30% of the final grade.

Course policies and regulations

Academic Honesty: The administration of student discipline in the university community is a responsibility shared by students, faculty, and administrative staff. The University of Belize Academic Honesty Policy outlines the University's expectations for the integrity of student's academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty throughout the process. All students are expected to conform to the Academic Honesty Policy. Lecturers are expected to consult with academic department chairpersons to prevent and respond to violations of the Academic Honesty Policy. Students wishing to dispute a charge of academic dishonesty or a sanction made upon them because of such allegations can do so by appealing to the Dean of Student Affairs to invoke the Discipline Appeals Process as detailed in the Student Handbook. (Please visit www.ub.edu.bz for a full description of violations to the Academic Honesty Policy and sanctions.)

Class Attendance: Students are expected to attend and participate in all sessions, and to be on time. Students must attend or participate in at least 80% of class sessions. Unexcused absences beyond this point may result in a reduction in your grade. You must provide the necessary documentation for any other absences e.g. doctors certificate if you are ill. You are expected to participate fully in class discussions and be prepared to contribute to class discussions and group work. Because participation in class is imperative for success, each student's final grade will be positively or negatively affected based upon the number of class sessions they attend or participate in. Absent students are responsible for obtaining class notes, handouts, and activities, as well as any other pertinent information.

If an instructor is late to a face to face class session or virtual classroom, the students are required to wait for the instructor at least **fifteen minutes** after the scheduled

start of the class period. If the instructor has not arrived or logged in by that time, the students are free to leave unless specifically notified to await the instructor's arrival.

Disability Consideration: Where necessary, and with adequate notice, instructors are required to make special arrangements, to allow students with special needs to participate in assessment without being placed at a disadvantage, for example use of enlarged fonts or Braille. Students requiring such considerations must be medically certified as having a specified special need.

Punctuality: Kindly make every effort to arrive or login on time to all sessions. Walking or logging into a session late is unprofessional and distracting to the rest of your colleagues. If you will be late for any session, please inform the instructor via an e-mail, telephone call, or text message.

Professional Ethics: In your fieldwork and/or class activities, you are expected to conduct yourself in an ethical, legal, and professional manner.

Readings: Readings will be assigned. You will be expected to attend the class session prepared to discuss the readings from the required text and/or any additional readings assigned. The aim is to enhance your understanding and skills related to these materials and to enable you to share your understanding with class members. Assigned readings must be completed prior to the class session for which they are intended.

Writings: The ability to write clearly and effectively is essential to a profession. Written assignments represent your best professional abilities and excellence. Assignments must be written in Standard English. Written assignments should be typed and carefully proofread. Pages that are disorganized and contain errors in grammar, spelling, syntax, or typing will receive reduced grades. All written work should adhere to the APA style as directed by the instructor.

Cell phones: As courtesy to your classmates and instructor, please have cell phones turned off throughout face to face class time. If an urgent matter arises that requires you to have your cell phone on (on vibrate), please inform the instructor before the session.

Microphone: Upon entering a virtual classroom, kindly ensure that all microphones are on mute. To speak or participate in a discussion online, kindly unmute microphone. Once you have finish speaking kindly mute microphone in the classroom.

Assessments: All assessments for grading are to be submitted via the Moodle Platform.

Missed of late Assignments: Students are expected to do all class assignments, and upload to the Moodle platform based on due dates. If prior approval for late assignment is not granted by the instructor, points will be deducted from that assignment or the assignment will not be accepted.

Computer and Software Requirement: Students enrolling in a web-enhanced course are required to complete Moodle for Students available on their course dashboard. Students enrolled in Blended and Online courses are required to complete Moodle for Students and E-learning for Students. In addition, students must have the basic computer, Internet and Keyboarding skills. They must have access to a computer with Internet Service, a web browser, and a UB email account. Microsoft Office 2016 are standard at the UB Campus computer labs. Students may use any desktop productivity software of their choice as long as their instructor can access their work. When compatibility issues arise, it is the student's responsibility to resolve the problem with their instructor. Technical support for course navigation is available through the Office of Open and Distance Learning at odl@ub.edu.bz.

E-mail Accounts: Students taking courses will be assigned a UB e-mail account. University and course-related emails will be sent to this account. The emails inside of MOODLE will be used as the main communication tool for the University of Belize. All online students are expected to check their e-mail accounts on a regular basis to avoid missing important information sent out from the instructor or from the University.

Virtual Classroom: Online students are encouraged to log into the virtual classroom as stipulated by the course instructor. This will allow students access to the instructor to seek clarity regarding an assessment, a course activity or to view the course weekly lecture. Virtual Classroom sessions are announced via the course page. This notification should include the day(s), time(s) and communication tool for the sessions.

Denying Course Access: Approximately ten (10) workdays after the beginning of each semester, the office of Finance may purge students who have not paid their fees for the semester. Before students can be reinstated, they must pay their fees through the Office of Finance. Students may have their access reinstated completing the reinstatement form and getting the proper signatures for reinstatement. For Financial concerns kindly email accountsreceivables@ub.edu.bz

Grading Scale

The final grade will be assigned in adherence with the University of Belize's Grade Policy. Thus, final grades will be computed using a combination of semester grades (quiz, essays, tests, presentations, blog, wiki, quizzes, e-portfolio/ portfolios) and a final examination. The final letter grade will be assigned using the following University Grading Scale:

95-100	A	80-84	B	65-69	D+
90-94	A-	75-79	C+	60-64	D
85-89	B+	70-74	C	0-59	F

Class Activities and Assignments

Quizzes (12) *	**Pass**
Test 1	10%
Test 2	10%
Test 3	10%
Assignment (1)	5**%**
Project (1)	35%
Final Exam (1)	30%
TOTAL POINTS	**100%**

***Students MUST pass quizzes with a grade of 70% before they are allowed to take the tests.**

PROJECT

1. Final Project: Research / Programming – Due Date: Week 14

The final project will consist of 4 sections. Each section has a deadline to complete. A complete description of the project can be found on the moodle site. It will consist of launching a website built with, html, css, and javascript and hosted on github. The site will have six pages: Course, Projects, Concepts, Database Queries, Documentation, About Us. See Project Specification on Moodle Site.

GRADING CRITERIA/FINAL PROJECT (Worth 132 points : 35%)

1	Website			50.00
	a.	Sophistication of interactive animated webpage		30.00
	b.	Clarity of description of concept assigned		10.00
	c.	Demonstrated proficiency in basic SQL queries		10.00
2	Presentation (see Presentation Rubric)			25.00
	a.	Organization		4.00
	b.	Visual Aids		4.00
	c.	Mechanics		4.00
	d.	Eye Contact		4.00
	e.	Verbal Techniques		4.00
	f.	Subject Knowledge		4.00
	g.	Content		4.00
	h.	Timing		4.00
3	Report			25.00
	a.	Cover page/ signature block		1.00
	b.	Table of contents		1.00
	c.	Topics structure: Major/ minor topics & Conclusion		1.00
	d.	Grammar, spelling and punctuation		1.00
	e.	Professional appearance		1.00
	f.	Length (1500 words/ 5-7 pages)		5.00
	g.	Content		
		1. Overview (300 words minimum)		5.00
		2. The Program		
		i. Overview of work distribution (300 words min.)		5.00
		ii. Team member subtopics (600 words min.)		5.00
		iii. Code		5.00
		3. Conclusion (300 words minimum)		10.00
	h.	Late submission		
		Total Value/ Points		100.00
		VALUE/ GRADE		**35.00**

	Presentation Rubric			
	1	**2**	**3**	**4**
Organization	Audience cannot understand presentation because there is no sequence of information.	Audience has difficulty following presentation because student jumps around.	Student presents information in logical sequence which audience can follow.	Student presents information in logical, interesting sequence which audience can follow.
Visual Aids	Student uses superfluous visual aids or no visual aids.	Student occasionally uses visual aids that rarely support the presentation.	Student's visual aids relate to the presentation.	Student's visual aids explain and reinforce the presentation.
Mechanics	Student's presentation has four or more spelling errors and/or grammatical errors.	Presentation has three misspellings and/or grammatical errors.	Presentation has no more than two misspellings and/or grammatical errors.	Presentation has no misspellings or grammatical errors.
Eye Contact	Student makes no eye contact and only reads from notes.	Student occasionally uses eye contact, but still reads mostly from notes.	Student maintains eye contact most of the time but frequently returns to notes.	Student maintains eye contact with audience, seldom returning to notes.
Verbal Techniques	Student mumbles, incorrectly pronounces terms, and speaks too quietly for audience in the back of class to hear.	Student's voice is low. Student incorrectly pronounces terms. Audience members have difficulty hearing presentation.	Student's voice is clear. Student pronounces most words correctly. Most audience members can hear presentation.	Student uses a clear voice and correct, precise pronunciation of terms so that all audience members can hear presentation.
Subject Knowledge	Student does not have grasp of information about subject.	Student is uncomfortable with information, provides only rudimentary information and fails to elaborate.	Student is at ease and provides most information with explanations and some elaboration.	Student demonstrates full knowledge (more than required) by providing information with explanations and elaboration.
Content	Overview of topic	Use of examples	Relevance of material presented	Correctness of material presented
Timing	<8 mins	8-12 mins	>15 mins	12-15 mins