CMSC 330 6381 Advanced Programming Languages (2238) CMSC-330

Fall 2023   Section 6381   3 Credits   08/16/2023 to 10/10/2023

👤 Faculty Contact

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💻 Course Description

Prerequisite: CMSC 315 (or CMSC 350). A comparative study of programming languages. The aim is to write safe and secure computer programs. Topics include the syntax and semantics of programming languages and run-time support required for various programming languages. Programming projects using selected languages are required.

◎ Course Introduction

CMSC 330: Advanced Programming Languages examines a variety of programming languages and language paradigms. The primary languages studied include C++, Ada 95, Java, LISP, and Prolog. Occasional references will be made to other languages that have unique features. Language categories studied will include imperative, structured, object-oriented, concurrent, event-driven, and declarative.

This course is designed to enhance your programming skills by requiring you to write programs in a variety of different languages. The projects will also help you understand language translation techniques such as recursive descent parsing to help you prepare for more advanced courses in language translation.

Note: This course is identified as a prerequisite for another course at UMGC. Successful completion of this course is required to advance to the next course in a sequence. A grade of Withdrawal (W), Failure for non-attendance (FN), Failure (F) or Incomplete (I) will not meet a prerequisite requirement. You may be barred from enrolling in or may be removed from courses for which you do not have the necessary prerequisites. Keep track of your progress in this course. If you are uncertain about your standing, consult with your instructor. You should also work with an academic advisor to be sure you are aware of your options and are meeting all necessary program requirements when planning your schedule.

📶 Course Outcomes

After completing this course, you should be able to

• use formal semantics and syntax to analyze and compare programming languages

• compare and contrast declarative and imperative programming language paradigms

• write safe and secure computer programs in a variety of languages

• select appropriate programming languages by evaluating language features and constructs

• discuss and analyze the compiler implementation of programming language features

📗 Course Materials

Click to access your course materials information (http://webapps.umgc.edu/UgcmBook/BPage.cfm?C=CMSC%20330&S=6381&Sem=2238)

✳ Class Guidelines

Faculty Information

To locate information within your LEO classroom, log in and review your faculty member's information, which is found in the Start Here section of your classroom after clicking on the **Content** link.

Contacting your Faculty Member

You can use the Pager feature within the classroom to send a message to your faculty member. Click the Classroom Walkthrough Videos link below, and then click **The Pager** link, to view a how-to video on how to use the Pager function within the classroom:

Classroom Walkthrough Videos Link (https://www.umgc.edu/current-students/learning-resources/leo)

Within the **Content** section of your classroom, view the **Start Here** section or **Additional Course Information** section within the **Syllabus** to learn more about contacting your faculty member.

Contacting Advising or the Department

- If you have questions related to the course content or any of the graded deliverables, please contact your instructor.
- For questions and concerns related to advising, you can call 800-888-8682 (toll-free), or, write to undergrad.advisor@umgc.edu (if you are an undergraduate student), or grad.advisor@umgc.edu (if you are a graduate student).
- For other questions and concerns about this class, you can contact your program director by writing to infotechnologydept@umgc.edu. Please be sure to mention the course name, course number, and your section number in the "Subject:" field of your email. Your email will be treated confidentially.

✔ Grading Information

This course consists of the following graded items (See Class and Assignment Schedule for details):

8 Weekly Discussions @ 20pts each	160
6 Quizzes @ 50pts each	300
2 Projects @ 270pts each	540
Final Calculated Grade	1,000

Participation

By registering for a Web-based course, you have made a commitment to participate in course conferences as well as other online activities. Plan to participate regularly. Participation for this course is defined as proactive discussion in weekly conferences and discussion questions. This requires you to actively reflect on weekly readings and to develop original ideas in your responses. You are expected to demonstrate critical thinking and your understanding of the content in the assigned readings as they relate to the issues identified in the conference discussion.

You are expected to respond to the main discussion topic(s) each week and read and respond to other student posts to contribute additional knowledge to the class. Note that your online conference participation counts significantly toward your final grade.

When communicating with others in this class always work to be respectful.

Late Assignments

The first day that a graded assignment is late there will be a 5% deduction in points. Each additional day there will be a 3% grade deduction. The total grade deduction cannot exceed 20% for the assignment. The one exception is the end of the course. All assignments must be submitted by the end of the course unless there is an approved Grade of Incomplete.

Extra Credit

There are no extra credit opportunities for the class.

⁝≡ Project Descriptions

Descriptions and details for all homework and projects are listed in the assignments area found in the Navigation bar under assignments and in the content area.

🏛 Academic Policies

ACADEMIC INTEGRITY

University of Maryland Global Campus (UMGC) has adopted a Philosophy of Academic Integrity (https://www.umgc.edu/current-students/learning-resources/academic-integrity/philosophy) to guide the university's commitment to a culture of academic integrity. Our approach cultivates socially responsible personal and professional behaviors and traits. All members of the University community must maintain the highest level of integrity across the academic experience.

Resources - UMGC provides an Academic Integrity Tutorial (https://www.umgc.edu/current-students/learning-resources/academic-integrity/tutorial) and an Integrity & Ethics Badge as learning resources. These resources include information on the fundamentals of academic integrity and how to apply your own personal ethics to coursework as a UMGC student and in other settings. Other Academic Integrity resources and guidelines are found at https://www.umgc.edu/current-students/learning-resources/academic-integrity (https://www.umgc.edu/current-students/learning-resources/academic-integrity).

Role of Instructor - Your instructor is your primary resource for how to uphold the highest ethical standards in the context of the specific requirements for this course.

Student Responsibility – You are responsible for using UMGC-approved resources to understand key academic integrity concepts and to support your own academic success through practices that uphold values of integrity: honesty, trust, fairness, respect, responsibility, and courage.

Turnitin - Turnitin is enabled within the classroom to support the development and assessment of authentic student writing. To learn more about Turnitin, the feedback it provides, how to use that feedback to improve your work, and your options regarding the inclusion of your work in the Turnitin database, visit University guides for Turnitin at https://libguides.umgc.edu/turnitin-faq (https://libguides.umgc.edu/turnitin-faq).

CLASSROOM CIVILITY

University of Maryland Global Campus is committed to the success of our global community and values the diverse identities and backgrounds of our students, faculty, and staff. Each one of us has a broader life and set of experiences beyond UMGC that we bring with us to each interaction. Sharing your story with your classmates provides opportunities to learn, relate, and gain inspiration from each other. Engagement often begins with introductions at the beginning of the course. Sharing your preferred name, preferred pronouns, and other details about yourself and your life builds a foundation for connection, understanding, and a richer and more personalized learning experience.

We also recognize that some of life's responsibilities and challenges outside of the classroom, such as childcare, a change in employment status, or illness, have an impact on success in a course. To the extent you are comfortable, we encourage you to communicate with your faculty member or Success Coach about any concerns you have for this course or as a student at UMGC so we can help you navigate potential obstacles and stay on track to achieve your goals.

Students are expected to work together cooperatively, and treat fellow students and faculty with respect, showing professionalism and courtesy in all interactions. Please review the Code of Civility for more guidance on interacting in UMGC classrooms: https://www.umgc.edu/current-students/student-life-and-support/student-handbook/civility-code (https://www.umgc.edu/current-students/student-life-and-support/student-handbook/civility-code).

POLICIES AND GUIDELINES

UMGC is committed to creating a climate in which everyone can thrive. UMGC's Non-Discrimination and Anti-Harassment Policy (https://www.umgc.edu/administration/policies-and-reporting/policies/administration-policies/non-discrimination-and-anti-harassment) (Policy VI-1.00) and Sexual Misconduct Policy (https://www.umgc.edu/administration/policies-and-reporting/policies/administration-policies/sexual-misconduct) (Policy 041.00) protect students, faculty, and staff.

Here you will find UMGC's Non-Discrimination Statement (https://www.umgc.edu/terms-conditions/nondiscrimination-statement).

Students with disabilities who need accommodations in a course are encouraged to contact the Office of Accessibility Services (OAS) at accessibilityservices@umgc.edu (mailto:accessibilityservices@umgc.edu), or call 240-684-2287.

The following academic policies and procedures apply to this course and your studies at UMGC.

150.25	Academic Integrity Policy (https://www.umgc.edu/administration/policies-and-reporting/policies/academic-affairs/academic-integrity) The University expects all members of the university community—students, faculty, and staff—to use guidelines to work with and promote integrity. If you are aware of any academic misconduct, please contact integrity@umgc.edu. All cases of academic misconduct will be addressed in accordance with Policy 150.25 (https://www.umgc.edu/administration/policies-and-reporting/policies/academic-affairs/academic-integrity) and associated procedures.
	You are expected to engage in new learning that furthers your development of knowledge, skills, and abilities in each course. According to this policy, you may not submit a substantial portion of any coursework that you have submitted to any course previously without express written approval through assignment guidelines or other forms of communication.
	You must use UMGC course materials responsibly. Uploading course materials to any website outside of UMGC's online classroom is prohibited by this policy.
V-1.03	Code of Student Conduct (https://www.umgc.edu/administration/policies-and-reporting/policies/student-affairs/code-of-student-conduct)
170.40 170.41 170.42	The following policies describe the requirements for the award of each degree: Degree Completion Requirements for Graduate Students (https://www.umgc.edu/administration/policies-and-reporting/policies/academic-affairs/graduate-school-degree-completion-requirements) Degree Completion Requirements for a Bachelor's Degree (https://www.umgc.edu/administration/policies-and-reporting/policies/academic-affairs/bachelors-degree-completion-requirements) Degree Completion Requirements for an Associate's Degree (https://www.umgc.edu/administration/policies-and-reporting/policies/academic-affairs/associates-degree-completion-requirements)
V-1.30	Student Reasonable Accommodation Policy (https://www.umgc.edu/administration/policies-and-reporting/policies/student-affairs/reasonable-accommodations-students) - Students are responsible for self-identifying with Accessibility Services to inform the university about medical conditions and request academic accommodations.

170.71	[Policy on Grade of Incomplete (https://www.umgc.edu/administration/policies-and-reporting/policies/academic-affairs/grade-of-incomplete-policy)](https://www.umgc.edu/administration/policies-and-reporting/policies/academic-affairs/grade-of-incomplete-policy) - Additionally, the mark of I depends on the following two criteria: Students who have completed 60% of their coursework with a grade of B or better for graduate courses or C or better for undergraduate courses and students who request an I before the end of the term. The mark of I is not available for noncredit courses.
170.72	[Course Withdrawal Policy (https://www.umgc.edu/administration/policies-and-reporting/policies/academic-affairs/course-withdrawal)](https://www.umgc.edu/administration/policies-and-reporting/policies/academic-affairs/course-withdrawal) - Students must follow drop and withdrawal procedures and deadlines available at [https://www.umgc.edu/admission/academic-calendar (https://www.umgc.edu/admission/academic-calendar)](https://www.umgc.edu/admission/academic-calendar) under Academic Calendar.
130.80	[Procedures for Review of Alleged Arbitrary and Capricious Grading (https://www.umgc.edu/administration/policies-and-reporting/policies/academic-affairs/capricious-grading-review)](https://www.umgc.edu/administration/policies-and-reporting/policies/academic-affairs/capricious-grading-review) – Appeals may be made on final course grades as described herein.
IV-3.20	[Intellectual Property (https://www.umgc.edu/administration/policies-and-reporting/policies/research/intellectual-property)](https://www.umgc.edu/administration/policies-and-reporting/policies/research/intellectual-property) - All university faculty, staff, and students must comply with University guidelines on the use of copyrighted material. Uploading UMGC or faculty copyrighted material without authorization degrades and corrupts the integrity of the teaching and learning experience and is a potential violation of UMGC policy and copyright law. You must obtain permission to post UMGC or other's copyrighted material to third-party websites, including social learning network sites. UMGC reserves the right to take appropriate action to remove copyrighted material uploaded without authorization.
205.06	[Calculation Of Grade-Point Average (GPA) for Inclusion on Transcripts and Transcript Requests (https://www.umgc.edu/administration/policies-and-reporting/policies/academic-affairs/grade-point-average-calculation-for-inclusion-on-transcripts-and-transcript-requests)](https://www.umgc.edu/administration/policies-and-reporting/policies/academic-affairs/grade-point-average-calculation-for-inclusion-on-transcripts-and-transcript-requests) - Note: Undergraduate and graduate courses have different Grading Policies. See the Grading Policies section of the Course Syllabus.
X-1.12	[Acceptable Use (https://www.umgc.edu/administration/policies-and-reporting/policies/info-governance-security-technology/acceptable-use)](https://www.umgc.edu/administration/policies-and-reporting/policies/info-governance-security-technology/acceptable-use) - The security of the online classroom is critical to ensuring a strong culture of academic integrity and authentic education at the University. It is a violation of the University's policies for anyone to share logon, password, and any other secure information about a UMGC online account, including credentials required to access the online learning environment.

GRADING

According to UMGC's grading policy, the following marks are used:

	Undergraduate	Graduate
A	90-100%	90-100%
B	80-89%	80-89%
C	70-79%	70-79%*
D	60-69%	N/A**
F	59% or below	69% or below
FN	Failure-Non attendance	Failure-Non attendance
G	Grade Pending	Grade Pending
P	Passing	Passing
S	Satisfactory	Satisfactory
U	Unsatisfactory	Unsatisfactory
I	Incomplete	Incomplete
AU	Audit	Audit
W	Withdrew	Withdrew

* The grade of "B" represents the benchmark for graduate courses. Students must maintain a Grade Point Average (GPA) of 3.0 or higher. Classes where final grade of C or F places a student on Academic Probation must be repeated.
** UMGC does not award the grade of D in graduate courses.

GRADE ROUNDING

Scores to individual assignments are calculated based on rubrics in the class and are not rounded to the whole point. The final grade for the course is determined by weighted average and will be rounded to the nearest whole point using mathematical rule (grades with .5 and above to be rounded to the next whole point).

EXTRA CREDIT

Assignments are designed to enable students to achieve course objectives and succeed in the program. In the interest of equity and fairness, there will be no extra credit opportunities. All assignments are identified in the syllabus.

COURSE EVALUATION SURVEY

UMGC values its students' feedback. You will be asked to complete an online evaluation toward the end of the term. The primary purpose of this evaluation process is to assess the effectiveness of classroom instruction in order to provide the best learning experience possible and make continuous improvements to every class. Responses are kept confidential. Please take full advantage of this opportunity to provide your feedback.

LIBRARY SUPPORT

Extensive library resources and services are available online, 24 hours a day, seven days a week at https://libguides.umgc.edu/home (https://libguides.umgc.edu/home) to support you in your studies. The UMGC Library provides research assistance in creating search strategies, selecting relevant databases, and evaluating and citing resources in a variety of formats via its Ask a Librarian service.

EXTERNAL LINK DISCLAIMER

This course may contain links to external sites neither owned nor maintained by UMGC. UMGC bears no responsibility for the accuracy, legality, or content of external sites or for that of subsequent links. In addition, the terms of use, security policies, and privacy policies may differ from those of UMGC. Contact the external site for answers to questions regarding its content, terms of use, and policies.

LEARNING MANAGEMENT SYSTEM SUPPORT

Those requiring technical assistance can access Help@UMGC Support directly in LEO under the Help menu. Additional technical support is available 24 hours a day, seven days a week via self-help and live chat at https://www.umgc.edu/help (https://www.umgc.edu/help) or by phone toll-free at 888-360-8682.

SYLLABUS CHANGES

All items on this syllabus are subject to change at the discretion of the Instructor and the Office of Academic Affairs.

📅 Class & Assignment Schedule

SESSION	TOPICS	ASSIGNMENTS
Week 1	- Introductions - Programming Environments - Syntax	- Week 1 discussions - Quiz 1
Week 2	- Syntax Analysis - Recursive Descent Parsing	- Week 2 discussions - Quiz 2
Week 3	- Elementary Data Types - Composite Data Types - Pointers	- Week 3 discussions - Quiz 3
Week 4	- Expressions - Assignments - Control Structures	- Week 4 discussions - Project 1
Week 5	Subprograms	- Week 5 discussions - Quiz 4
Week 6	- Polymorphism - Program Decomposition - Generics	- Week 6 discussions - Quiz 5
Week 7	Object-Oriented Programming	- Week 7 discussions - Quiz 6

Week 8	• Concurrency	• Week 8 discussions • Project 2

Students can access their complete list of assignments and their corresponding due dates within the **Assignments** section of the classroom by navigating to the **Assignments** section of the class from the main navigation bar. Follow the link below, and then click **Assignments**, for a video demonstration on how to utilize this feature.

Classroom Walkthrough Videos Link (https://www.umgc.edu/current-students/learning-resources/leo)

Students also have access to a calendar tool on the course homepage within the classroom.

Week 8	• Concurrency	• Week 8 discussions • Project 2