

Information for Computer Science and Computer Engineering students who wish to transfer to UMCP or UMBC

If you intend to transfer to UMCP in either CS or Computer Engineering you need to be aware of some potential difficulties. Most importantly, CMSC203 and CMSC204 (Computer Science I and II at MC) **DO NOT** currently transfer to UMCP. So what are your options? In order to answer that question you need to understand the Computer Science requirements for the CS or Computer Engineering major at UMCP. This information has been taken from the CS website at UMCP and annotated to make it more useful for MC students. Here is a link to the CS-UMCP website: <http://undergrad.cs.umd.edu/degree-requirements-cs-major>

Required Lower Level Computer Science (Freshman/Sophomore) Courses at UMCP

1. CMSC 131 (4) Object-Oriented Programming I with the corequisite: MATH 140 (4) Calculus I; *MATH 140 at UMCP = MATH181 at MC.*
2. CMSC 132 (4) Object-Oriented Programming II with the corequisite: MATH 141 (4) Calculus II; *MATH 141 at UMCP = MATH182 at MC.*
3. CMSC 216 (4) Introduction to Computer Systems. *MC currently has no equivalent to CMSC 216 but we might introduce an equivalent course in the future.*
4. CMSC 250 (4) Discrete Structures. *CMSC 250 at UMCP = CMSC207 at MC*

UMCP Required Lower Level CS Courses	Montgomery College CS courses	Offered at MC
CMSC 131	CMSC 203(not transferrable to UMCP)	Fall, Spring, Summer
CMSC 132	CMSC 204(not transferrable to UMCP)	Fall, Spring
CMSC 250	CMSC 207(transferrable to UMCP)	Fall, Spring
CMSC 216	MC currently has no equivalent to CMSC 216 but we might introduce an equivalent course in the future	Not Offered at MC
MATH 140	MATH 181	Fall, Spring, Summer
MATH 141	MATH 182	Fall, Spring, Summer

Options for Transfer Students from MC

- Option 1: The Exemption Exams at UMCP
 Students who have previously taken rigorous CS courses and who have acquired substantial skills in JAVA programming should schedule and take exemption exams before enrolling in CMSC 131 or CMSC 132 at UMCP. Even though MC's courses CMSC203 and CMSC204 (Computer Science I and II) DO NOT CURRENTLY TRANSFER to

UMCP they might provide a transfer student with the necessary competence to pass one part or both parts of the exemption exam for Computer Science I and II.

Below is detailed information about the exemption exams and a link to the Exemption Exams page at UMCP. Link: <http://undergrad.cs.umd.edu/exemption-exams>

Exemption Exams help to determine the proper placement of students into Computer Science courses. Academic credit is not provided for a satisfactory score. All students are required to have prerequisite courses or exemption exams completed before starting any computer science course. The dates listed are for incoming students. Students may only take the exemption exam once, and all exams should be taken prior to the start of any semester. Regretfully, clarification or additional questions while you are taking the exam cannot be answered. Please answer to the best of your ability. Do not attempt an exam if you do not know all the topics that are covered on the exam, listed below. There is no cost associated with a Computer Science Department exemption exam. Exemption exams are generally graded within 2 weeks, and the results are emailed.

How to schedule:

If you wish to take an exam, please reserve a seat two business days prior to the scheduled exam date by emailing ugrad@cs.umd.edu. In your email, please include your name, your UID (University ID), and the exam you wish to take.

Winter 2014-15 Exemption Exams for incoming students will be given on December 5, 12; 2014 and January 9, 12, 13, 20, 21; 2015.

All exams are administered at 3pm. Check in at the Undergraduate Office room in 1119 A.V. Williams at least 5 minutes prior to your scheduled exam time. Bring your student ID and pencils.

How to prepare:

Please review the course descriptions below to help you review the topics covered in each exam. If you do not know the materials listed below for these exams, you will not pass. Do not attempt exams if you do not know all the topics listed. Please note you are not expected to learn the materials in order to pass the exams; rather, the exams are meant to identify your current knowledge and capabilities. UMCP does not offer practice tests for the exemption exams.

CMSC131 Object Oriented Programming I

Duration: 45 minutes. Format: Handwrite code, define terms. Passing score: 80% +.

Topics covered:

- Intro to Computer Systems
- Programming Basics: Variables, Operators, Expressions, Statements, Methods
- Java Text Input/Output
- Conditionals
- Loops

- Principles of Object Oriented Programming
- Basics of Program Design
- Testing and Debugging
- Java Memory Map
- Arrays and Java ArrayLists
- Java interfaces
- Inheritance
- Polymorphism

CMSC132 Object Oriented Programming II

Note: You will need to place out of CMSC131 prior to moving onto the CMSC132 exam.

Duration: 2 hours. Format: Handwrite code, define terms. Passing score: 80% +.

Topics covered:

- Topics listed under CMSC131
- Object-oriented software development
- Software life cycle
- Requirements & specifications
- Designing objects & classes
- Testing & code coverage
- Programming paradigms
- Design patterns
- Algorithms & data structures
- Asymptotic efficiency
- Lists, stacks, queues
- Trees, heaps
- Sets, maps, graphs
- Hash code contract
- Recursion
- Programming skills
- Java collection framework
- Threads, synchronization
- Exceptions

CMSC216 Introduction to Computer Systems

Duration: 2 hours. Format: Handwrite code, define terms. Passing score: 80% +.

Topics covered:

- Unix Memory Model
- Moving from Java to C programming
- Pointers and dynamic data structures in C
- I/O, standard libraries
- Testing
- Assembly Language
- Process control
- Systems programming
- Program measurement and optimization

- Multithreaded programming with pthreads
- Libraries and linking
- Dynamic memory management

CMSC250 Discrete Structures

Duration: 1 hour and 15 minutes. Format: Define terms, problem solve. Passing score: 80% +.

Topics covered:

- Propositional logic, circuits, and predicate logic
- Elementary number theory
- Summations, recurrences, and mathematical induction
- Sets, Venn diagrams, Cartesian products, powersets
- Counting and combinations
- Functions and the pigeonhole principle
- Relations, reflexivity, symmetry, and transitivity
- Graph theory
- Boolean algebra
- Combinatorics
- Induction

**NOTE: CMSC 207 at MC is transferred to UMCP as CMSC 250 UMCP
CMSC 207 is not offered at MC during the summer.**

Option 2: Take and pass CMSC131-132 at UMCP.

You can take courses at UMCP while you are still a student at MC by using the MTAP (Maryland Transfer Advantage Program). Even though MC's courses CMSC203 and CMSC204 (Computer Science I and II) DO NOT CURRENTLY TRANSFER to UMCP they might provide a transfer student with the necessary competence to pass CMSC131 and/or CMSC132 at UMCP. You could also use MTAP to take CMSC216 or CMSC250 (CMSC 207 at MC is transferrable. Only offered in the fall and spring at MC) at UMCP. MTAP link:

<http://www.admissions.umd.edu/requirements/MarylandTransferAdvantageProgram.php>

Option 3: Transfer to the Computer Science or Computer Engineering program at UMBC (University of Maryland, Baltimore County).

MC's courses CMSC203, 204, and 207 all transfer to UMBC at the present time, eliminating the need to worry about passing CS courses at UMCP.

Link to the UMBC CS Transfer Agreement

<http://cms.montgomerycollege.edu/WorkArea/DownloadAsset.aspx?id=62488>

NOTE: Students will need to complete **the Gateway courses CMSC203 and CMSC204 with a grade of B or better and CMSC207 with a grade of C or better**. Students are only permitted two attempts in courses for their major; a withdrawal is considered an attempt.