

MET CS 665 Software Design and Patterns 2026 Summer 02 Online Course Syllabus

Instructor

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Course Duration

Start: June 30, 2026; End: August 17, 2026

Course credits

4 credits

Course Description

The course explores software design principles, the object-oriented paradigm, unified modeling language; creational, structural, and behavioral design patterns; OO analysis and design; software architectures and frameworks; code refactoring. Laboratory course. All programming examples for the lectures will be in Java.

Prerequisites: MET CS 526 or MET CS 622 and one of the following (MET CS 341, MET CS 342, MET CS 520, or MET CS 521). Or instructor's consent.

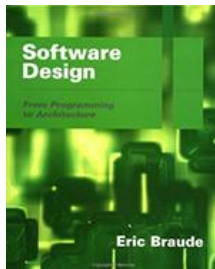
Course Learning Objectives

By successfully completing this course, you will be able to do the following:

1. Identify and retain the goals of software design.
2. Apply the principal design patterns in software design projects.
3. Implement procedures reliably and flexibly.
4. Perform object-oriented analysis and design.

Course Materials

Recommended Books



Eric, J. Braude. (2003). *Software Design: From Programming to Architecture*.

Publisher: Wiley

ISBN-13: 978-0471204596

ISBN-10: 0471204595

This book can be purchased from [Barnes and Noble at Boston University](#).



Eric Freeman and Elisabeth Robson. (2020). *Head First Design Patterns*, 2nd ed.

Publisher: O'Reilly

ISBN-13: 978-1492078005

ISBN-10: 149207800X

This book can be purchased from [Barnes and Noble at Boston University](#).

Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides, Grady Booch. (1994). *Design Patterns: Elements of Reusable Object-Oriented Software*.

Publisher: Addison-Wesley Professional

ISBN-13: 978-0201633610

ISBN-10: 0201633612

This book can be purchased from [Barnes and Noble at Boston University](#).

Tools and Technology Requirements

1. An Integrated Development Environment (IDE) recommended (any IDE is OK), but not required.
2. Java Development kit (JDK), using a free development environment of your choice.
3. Drawing Tools: Students are free to use UML drawing tools that they prefer.
 - Microsoft Visio is often used. To obtain Visio, please follow the syllabus section "Microsoft Azure Dev Tools for Teaching".
 - diagrams.net (<https://www.diagrams.net/>) is free online diagram software that students can choose to use.

Study Guide and Timeline of Deliverables

This course starts on a Tuesday. The modules in this course run from Tuesday to Monday.



Module 1 Study Guide and Deliverables

(June 30 – July 6, 2026)

Module Theme:

Software Design, Unified Modeling Language

Readings:

- Module 1 online content – Appendices section is optional

- Optional Readings:
 - Braude: Chapters 1, 2, 4, and 5

Assignments:

- Module 1 Assignment due **Wednesday, July 8, at 6:00 AM ET**

Live Classrooms:

- **Sunday, July 5 at 11:00 AM – 1:00 PM ET**
- One-hour open office with facilitator. Day and time will be provided by your facilitator.

Module 2 Study Guide and Deliverables

(July 7 – July 13, 2026)

Module Theme:

Overview of Design Patterns, Examples applications

Readings:

- Module 2 online content
- Optional Readings:
 - Braude: Chapter 6
 - Gamma: Chapters 1, 2
 - Freeman: Chapter 1

Discussions:

- Discussion Topic 1 original post and constructive comments on the posts of others due **Wednesday, July 15, at 6:00 AM ET**

Assignments:

- Module 2 Assignment due **Wednesday, July 15, at 6:00 AM ET**

Live Classrooms:

- **Saturday, July 11, 11:00 AM – 1:00 PM ET**
- One-hour open office with facilitator. Day and time will be provided by your facilitator.

Module 3 Study Guide and Deliverables

(July 14 – July 20, 2026)

Module Theme:

1. Creational Design Patterns
2. Structural Design Patterns

Readings:

- Module 3 online content

- Optional Readings:
 - Braude: Chapters 7 and 8
 - Gamma: Chapter 3
 - Freeman: Chapters 4, 5

Discussions:

- Discussion Topic 1 original post and constructive comments on the posts of others due **Wednesday, July 22, at 6:00 AM ET**

Assignments:

- Module 3 Assignment due **Wednesday, July 22, at 6:00 AM ET**

Live Classrooms:

- **Saturday, July 18, 11:00 AM – 1:00 PM ET**
- One-hour open office with facilitator. Day and time will be provided by your facilitator.

Module 4 Study Guide and Deliverables (July 21 – July 27, 2026)

Module Theme:

Behavioral Design Patterns

Readings:

- Module 4 online content
- Optional Readings:
 - Braude: Chapter 9
 - Gamma: Chapters 4 and 5
 - Freeman: Chapters 2, 3, 6, 7, 8, 9, 10, 11

Discussions:

- Discussion Topic 2 original post and constructive comments on the posts of others due **Wednesday, July 29, at 6:00 AM ET**

Assignments:

- Module 4 Assignment due **Wednesday, July 29, at 6:00 AM ET**

Live Classrooms:

- **Saturday, July 25, 11:00 AM – 1:00 PM ET**
- One-hour open office with facilitator. Day and time will be provided by your facilitator.

Module 5 Study Guide and Deliverables

(July 28 – August 3, 2026)

Module Theme:

Frameworks, Spring Framework

Readings:

- Module 5 online content
- Optional Readings:
 - Braude: Chapter 14

Discussions:

- Discussion Topic 2 original post and constructive comments on the posts of others due **Wednesday, August 5, at 6:00 AM ET**

Assignments:

- Module 5 Assignment due **Wednesday, August 5, at 6:00 AM ET**

Live Classrooms:

- **Saturday, August 1st, 11:00 AM – 1:00 PM ET**
- One-hour open office with facilitator. Day and time will be provided by your facilitator.

Module 6 Study Guide and Deliverables

(August 4 – August 10, 2026)

Module Theme:

Refactoring and Code Cleaning

Readings:

- Module 6 online content

Assignments:

- Module 6 Assignment due **Wednesday, August 12, at 6:00 AM ET**

Assignments:

- Term Project due **Thursday, August 13, at 6:00 AM ET**

Live Classrooms:

- **Saturday, August 8, 11:00 AM – 1:00 PM ET**
- One-hour open office with facilitator. Day and time will be provided by your facilitator.

Course Evaluation:

Please complete the course evaluation once you receive an email or Blackboard notification indicating the evaluation is open. Your feedback is important to MET, as it helps us make

improvements to the program and the course for future students.

Final Exam Details

The Final Exam is a proctored exam available from **Wednesday, August 12, 2026, at 6:00 AM ET to Saturday, August 15, 2026, at 11:59 PM ET.**

The Computer Science department requires that all final exams be administered using an online proctoring service, which you will access via your course in Blackboard. In order to take the exam, you are required to have a working computer, webcam, speakers, and microphone that meet the proctoring service's system requirements. A detailed list of those requirements can be found in the Proctored Exam Information module located on the course home page. Additional information regarding your proctored exam will be forthcoming from the Assessment Administrator.

The exam is accessible during the final exam period. Your proctor will enter the password to start the exam.

Final Exam Duration: **2 hours (120 minutes)**

This is a **closed book/closed notes exam**. You cannot bring any materials into the exam. You cannot access any web-based content or computer stored content other than the course exam during the two-hour period.

Grading Information

Please check the Study Guide in the syllabus for Live Classroom dates and specific due dates for assignments.

Grading Structure and Distribution

The grade for the course is determined by the following:

Overall Grading Percentages	
Discussions	10
Assignments	30
Term Project	30
Proctored Final Exam	30

Numerical Grade	Letter Grade
95 - 100	A
90 - 95	A-

85 - 90	B+
80 - 85	B
75 - 80	B-
70 - 75	C+
65 - 70	C
60 - 65	C-
< 60	F

Graded Items

- **Discussions:** The course will have two discussion topics. The first topic will be available during Module 2 and the second discussion topic will be available during Module 4. The time period for each discussion topic will be one week after the end of the respective module. In addition to making your contribution to the discussion topics, you are encouraged to make constructive comments on the posts of others. The evaluation criterion is your post's helpfulness to the rest of the class.
 - **Participation direction:** Access and post your discussion in the module. The instructor will notify the students when the Discussion topic becomes available.
- **Assignments:** Assignments are focused on applying the topics learned in the module. Each module has an assignment. Depending on the module, the module's assignment could be based on design, implementation, or both.
 - **Submission direction:** Submit the assignment in each module.
- **Term Project:** The term project specifications will be made available after Module 4. Each student will work on the specified term project on their own. The term project will involve designing the specified application and implementation with the appropriate design patterns.
 - **Submission direction:** Submit the term project in Module 6.
- **Proctored Final Exam:** There will be a proctored final exam in this course. Detailed instructions regarding your proctored exam will be forthcoming from the Assessment Administrator.

Ungraded Items

- **Ungraded Discussion Forums:** There are ungraded discussion forums throughout the course. You are encouraged to share your knowledge and learn from your peers.
- **Live classroom sessions:** Live Classroom sessions will be offered during this course in Modules 1 to 6.
 - Your participation, while not graded, will be valuable to you and the class. To participate in the Live Classroom discussion, you will need to go to the "Live Classroom/Offices" area. **If you are not able to attend the live classrooms, consider watching the recordings as mandatory.**
 - Live Classroom sessions will be recorded and archived for further viewing.
 - You need to have speakers and a microphone for your computer. A headset is recommended.

Expectations

We recognize that emergencies occur in professional and personal lives. If one occurs that prevents your completion of homework by a deadline, please make this plain to your facilitator. This must be done in advance of the deadline (unless the emergency makes this impossible, of course), and should be accompanied by particulars that back it up. Additional documentation may be requested. **No regular credit will otherwise be granted for late homework but we will note it and it may influence your course grade.**

Policy for the Use of Generative AI

Students should learn how to use AI text generators and other AI-based assistive resources (collectively, AI tools) to enhance rather than damage their developing abilities as writers, coders, communicators, and thinkers.

When using Generative AI in coursework, students shall:

1. Give credit to AI tools whenever used, even if only to generate ideas rather than usable text or illustrations.
2. When using AI tools on assignments, add an appendix showing (a) the entire exchange, highlighting the most relevant sections; (b) a description of precisely which AI tools were used (e.g. ChatGPT private subscription version or DALL-E free version), (c) an explanation of how the AI tools were used (e.g. to generate ideas, turns of phrase, elements of text, long stretches of text, lines of argument, pieces of evidence, maps of conceptual territory, illustrations of key concepts, etc.); (d) an account of why AI tools were used (e.g. to save time, to surmount writer's block, to stimulate thinking, to handle mounting stress, to clarify prose, to translate text, to experiment for fun, etc.).
3. Not use AI tools during in-class examinations, or assignments, unless explicitly permitted and instructed.
4. Employ AI detection tools and originality checks prior to submission, ensuring that their submitted work is not mistakenly flagged.
5. Use AI tools wisely and intelligently, aiming to deepen understanding of subject matter and to support learning.

For more details, please see the [Generative AI Assistance \(GAIA\) policy](#).

Course Policies and Academic Conduct

Academic Integrity: Plagiarism is the passing off of another's words or ideas as your own, and it is a serious academic offense. Plagiarism and cheating also defeat the purpose of getting an education. Plagiarism and cheating cases will be handled in accordance with the disciplinary procedures described in the Academic Conduct Code. You are expected to know and abide by the code, which can be read online: [Academic Conduct Code](#). Penalties range from failing an assignment or course (first offense) to suspension or expulsion from BU. If in doubt, cite your source. If you have any questions about academic integrity, please ask your instructor.

Incidents of academic misconduct will be reported to the Academic Conduct Committee

(ACC). The ACC may suspend/expel students found guilty of misconduct.

Important Message on Final Exams

Dear Boston University Computer Science Online Student,

As part of our ongoing efforts to maintain the high academic standard of all Boston University programs, including our online MSCIS degree program, the Computer Science Department at Boston University's Metropolitan College requires that each of the online courses includes a proctored final examination.

By requiring proctored finals, we are ensuring the excellence and fairness of our program. The final exam is administered online.

Specific information regarding final-exam scheduling will be provided approximately two weeks into the course. This early notification is being given so that you will have enough time to plan for where you will take the final exam.

I know that you recognize the value of your Boston University degree and that you will support the efforts of the University to maintain the highest standards in our online degree program.

Thank you very much for your support with this important issue.

Regards,

Professor Lou Chitkushev, Ph.D.
Associate Dean for Academic Affairs
Boston University Metropolitan College

Disability and Access Services

In accordance with university policy, every effort will be made to accommodate students with respect to speech, hearing, vision, or other disabilities. Any student who may need an accommodation for a documented disability should contact [Disability and Access Services](#) at 617-353-3658 or at access@bu.edu for review and approval of accommodation requests.

Once a student receives their accommodation letter, they must send it to their instructor and/or facilitator each semester. They must also send a copy to their Faculty & Student Support Administrator, who may need to update the course settings to ensure accommodation is in place. Accommodation cannot be implemented if the students do not send their letters.