CS 130 Course Syllabus
Proposed for Spring 2027, Section 1 | Westmont College
Collaborative Software Engineering

Learning Objectives

The topics and skills listed below are what you will learn in this course. Their relation to <u>the departmental Program Learning Outcomes (PLOs)</u> and <u>Westmont College's Institutional Learning Outcomes (ILOs)</u> are denoted in the parenthesis following each item.

1. Developing a full-stack software product through effective collaboration (PLO1, PLO3, ILO3, ILO6, ILO7)
2. Understanding the nature of agile software project management (PLO3, PLO4, ILO4, ILO8)
3. Gain practical experience in modern software architectures (PLO2, ILO, ILO5, ILO8)
4. Effectively communicate orally to convey technical and functional information given various rhetorical situations, audience, genre, and purpose (ILO7, PLO2)

GE Qualification: Oral Communication

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This course is designated to satisfy the General Education Oral Communication requirement. Throughout the semester, students engage in sustained oral communication within an authentic collaborative software engineering environment. Because the course is organized around Agile team practices, oral communication is not peripheral to the course; it is one of the primary ways students participate, collaborate, and demonstrate learning. Students regularly speak in professional, technical, and stakeholder-facing contexts, and they are evaluated not only on what they build, but also on how clearly, responsibly, and effectively they communicate with others while building it.

Students practice oral communication in multiple rhetorical situations that require them to adapt to audience, purpose, and genre. Oral communication begins in assignments and meetings such as the Initial Client Meeting, Team User Story Map, Initial Release Mapping, Product Release Kickoff, and Team OKR Meeting. In these settings, students must explain ideas, ask clarifying questions, present priorities, justify decisions, and translate between technical implementation and product or user needs. These activities develop clarity, organization, audience awareness, and message construction in real collaborative contexts.

All Agile ceremonies in the course are also oral communication assignments. In recurring Review, Retro, and Planning meetings, Sprint Reviews and Demos, Progress Check-ins, Release Retrospective, and Team OKR Review, students must verbally report progress, describe problems, propose next steps, respond to questions, listen carefully to teammates, and incorporate feedback. These repeated structured speaking opportunities help students develop attentiveness, professional responsiveness, and the ability to communicate clearly under evolving project conditions. Because these oral tasks occur throughout the semester, students practice communication as an ongoing discipline rather than as a one-time presentation exercise.

The course also includes a culminating Final Product Launch presentation, in which students formally present their product MVP to an audience. This assignment requires students to organize and deliver a coherent oral presentation, communicate technical and functional value clearly, and respond appropriately to audience

questions. In addition, beginning in the redesigned AY 2026-27 version of the course, students will complete a Technical Trend Talk, an individual oral presentation, and Sprint Planning Proposals, which provide additional structured opportunities to practice oral communication for both technical and mixed audiences. Together, these assignments ensure that students complete multiple oral communication tasks with opportunities for feedback, growth, and improved performance across the semester.

Oral communication in this course is assessed through assignments and course components including Team Product MVP & Presentation, Attendance and Participation, and Peer Performance Reviews. Because the course treats communication as essential to collaborative software engineering practice, students are assessed on clarity, audience-centeredness, delivery, attentiveness, professionalism, and responsiveness in both formal presentations and recurring team-based oral work.

GE Criteria Alignment

- **Clarity and Style in Context** Work will be evaluated for clarity and style in specific oral communication contexts informed by purpose, audience, and genre in addition to content. Applied in: Technical Trend Talk, Sprint Reviews, and Final Product Launch (students must adapt communication for technical and non-technical audiences).

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- **Message Construction & Audience-Centeredness** Students are graded on their ability to construct messages with insightful ideas, contextual appropriateness (sensitivity to audience and occasion), and audience-centeredness. Applied in: Technical Trend Talk (20-minute individual presentation), Sprint Planning proposals, and stakeholder-facing Product Launch.

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- **Delivery Skills** Students are graded on delivery skills such as quality of voice (tone, pitch, rate) as well as physical presence (eye contact, gestures, posture, appropriate appearance, and energy). Applied in: Technical Trend Talk and Final Product Launch presentation.

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- **Attentiveness** Students are graded on attentiveness (good listening, receptivity to feedback, ability to understand and respond appropriately, etc.). Applied in: Agile ceremonies (Sprint Retrospectives, Refinement sessions, Q&A during presentations).

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- **Multiple Oral Assignments with Feedback** Every student will deliver at least two individual or group oral assignments with instructor and/or peer feedback to inform later oral assignments. Required assignments: Technical Trend Talk (individual, with feedback) Final Product Launch Presentation (group, informed by prior feedback)

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Oral communication growth across the semester is part of the evaluation process. Through these structured communication environments, students develop professional-level oral communication skills essential for collaborative software engineering practice.

Who, What, When, & Where

- **Instructor**: Mike Ryu, *Assistant Professor of Computer Science*
  - **Contact**: Via Westmont CS Slack (preferred) or email (less preferred)
  - **Office Location**: Winter Hall 301 (Shared with Dr. Don Patternson)
  - **Office Hours**: Varies. See mikeryu.com/students/meet to learn more. Appointments preferred.
- **Lecture**: Tuesdays/Thursdays at 4:00-5:50 pm
- **Classroom**: Winter Hall 206

Required Textbook & Materials

- *Mythical Man-Month, The: Essays on Software Engineering* by Fred Brooks Jr.
  - Available on: Amazon.com, Archive.org (free)
- *Escaping the Build Trap: How Effective Product Management Creates Real Value* by Melissa Perri
  - Available on: Amazon.com, Audible.com (audiobook)
- Access to a computer system with abilities to run the following programs:
  - *nix Shell (e.g., WSL, macOS Terminal, Ubuntu)
  - Code Editor (e.g., VS Code, Sublime Text, IntelliJ IDEA)
  - VirtualBox (or, alternatively, VMWare, Parallels)
  - Docker Desktop or CLI
  - Git, GitHub
  - Slack
- An AWS Free Tier account or an equivalent cloud service provider account

Evaluations & Grading

Evaluation Categories & Distributions

Score Distribution	Evaluation Category
50%	Team Product MVP & Presentation
15%	Peer Performance Reviews
15%	Reading & Lab Responses
10%	Going Beyond the MVP
10%	Attendance and Participation
Total 100%	Final course score

- The evaluation categories and score distributions shown above may be adjusted as the course progresses per the instructor's discretion.
- In addition to the evaluation categories above, extra credit opportunities may be made available throughout the course.
- For exam dates and assignment due dates, please refer to the tentative course schedule posted on mikeryu.com/students/course-information/cs-130-spring-2027.

Letter Grading (based on a % course score)

Final Course Score	Letter Grade	Grade Point
[90.00, +∞)	A	4.0
[80.00, 90.00)	B	3.0
[70.00, 80.00)	C	2.0
[60.00, 70.00)	D	1.0
(-∞, 60.00)	F	0.0

- All other grading schemes will only be permitted in accordance with Westmont College's policies *and* with a written permission from the instructor.
- Final course scores will be rounded up to the nearest 100ths (e.g., `79.995` → `80.00`) before converting them to a letter grade as shown above.
- Final course grade will be converted directly to the letter grade as shown above without applying any sort of "curve" at the end.
- Students are responsible for bringing any grading errors to the instructor's attention within 1 week of receiving the grade or the last day of the semester, whichever is earlier.
- +/- designations are not used for the letter grading of this course.

Course Policies

The following course policies have been established with your learning effectiveness in mind, meaning I (and other instructors here at Westmont) believe there's a good reason why the policies are set a certain way. Although I have written them in a rather terse manner below, if you have any questions regarding the motivation behind certain policies, please do not hesitate to ask me.

- **Enrollment**: Adding, dropping, and all other enrollment processes follow Westmont College's standard schedule and policies.
- **Announcements**: All course-related announcements will be made through Slack. Each student is individually responsible for keeping up to date.
- **Late Submissions**: 1% of the assignment score will be deducted per each hour the assignment was submitted late (e.g. 12 hours late is -12%).
- **Electronic Device Usage Policy**: during lecture, students are permitted to use electronic devices for notetaking only. This permission will be revoked if the devices are used for any other purpose.
- **Attendance and Participation**: *Both* showing up *and* actively engaging in the course are required for the students of this course.
  - **Missed Course Content**: Each student is responsible for covering or making up the missed course content. Lectures will not be repeated.
  - **Excused Absences**: Absences that are due to legitimate and documented reasons will be excused if a prior notice is provided to the instructor.
  - **AWOLs**: Up to 2 AWOLs (1 week worth) are permitted and will not be penalized. Any additional AWOLs will impact the course grade negatively.

The Red Card 🟥

In the first week, each enrolled student of this course will be given one small physical red card. At any time during the semester, any student can raise the card in class and all activities of the course—whether it's lecture, lab, quiz, or even exams—will be brought to a brief yet complete stop to address any thoughts, comments, concerns, etc., of the student who raised the card. Each student may only use the red flag once during the entire semester until the last minute of the last class session prior to the final exam. There are no other rules to the usage of the red card and the students are encouraged to freely exercise their discretion in its appropriate utilization.

Collaboration & Academic Integrity

Learning how to develop a software product through effective collaboration is one of the learning objectives of this course. Therefore, close collaboration with your classmates in this class will be necessary. Nevertheless, there are components of this course that are intended to be a learning experience through individual thinking,

exploration, and experimentation. Other than working on the group project with your assigned groupmates, assume ALL in-class exercises, homework and lab assignments of this course are to be worked on individually unless otherwise specified by the instructor. As per usual, copying from outside sources (e.g., other students, internet, generative AI, etc.) on any material to be graded in a manner not explicitly permitted by the instructor will be considered a breach of academic integrity. Any breach of academic integrity may result in failure of the assignment/exam and/or failure of the class. Westmont College's policy on Academic Integrity, as stated on its Provost's Office website, will be enforced.

Use of Generative AI

Use of generative AI tools such as *ChatGPT*, *Bard*, *GitHub Copilot*, etc. as a helpful tool for programming is becoming an increasingly popular trend. Therefore, I have determined that it is necessary to provide students with guidelines on their usage in the context of a computer science classroom. Please see the 'APPLICATION' section on the 3rd page of the *Generative AI Addendum*.

If you plan to use *any* generative AI tool this semester, please be sure to review the guidelines linked above, as failure to use the AI without adherence to the guidelines may subject you to disciplinary action. On the other hand, earnest efforts to incorporate the use of generative AIs into your learning process by following the guidelines may be granted extra credit opportunities.

Faith and Learning

Topics relating to faith may come up throughout the course of instruction, and efforts will be made ad-hoc to give them due time so that we can discuss them as a group and explore how they may relate to our course material.

For more inspiration on how one's faith may guide their work in academia and in the field of computing profession, I highly recommend reading Dr. Don Patterson's *My view of the relationship between my faith and my professional work*.

Student Health and Well Being

As fellow members of the same community we are all a part of, your instructor is invested in your physical, mental, and spiritual health and well being. We encourage you to be proactive about your own well being and utilize the resources available here at Westmont should you notice any issue that may impact your health.

- **For physical, medical, or psychological emergencies**: dial **911** on any phone.
- **For psychological crises**: dial **988** on any phone, or text **988** from a mobile phone.

- **Westmont College Health Center**: (805) 565-6164
- **Westmont College Counseling and Psychological Services (CAPS)**: caps@westmont.edu
- **Westmont Campus Pastor's Office**: pastorsoffice@westmont.edu, (805) 565-6170

Please note that your instructor may attempt to connect you with on-campus support resources upon becoming aware of any concern regarding your general health and well being.

Accessibility Accommodations

Students who have been diagnosed with a condition that meets the criteria of a disability are strongly encouraged to contact the Office of Disability Services (ODS) as early as possible to discuss appropriate accommodations for this course. Formal accommodations will only be granted for students whose disabilities

have been verified by ODS. These accommodations may be necessary to ensure your full participation and the successful completion of this course. Please email ods@westmont.edu and see the website for more information: http://www.westmont.edu/_offices/disability.

Acknowledgements

Educational materials for this course, including this course syllabus, was at the very least heavily inspired by and at the very most directly adopted from the materials generously donated by Mr. Noah Spahn (nspawn@westmont.edu) and Dr. Don Patternson (dpatterson@westmonte.edu).

"The Red Card" is a concept adopted from The Red Flag, which is an anecdotal analogy that appears in Jim Collins's business book: *Good to Great*.

Week	Tuesday Session Date	Tuesay Session Topic	Thursday Session Date	Thursday Session Topic	Notes
1	8/29/2023	Intros & Onboarding SWE vs. CS, Waterfall Product Ideas	8/31/2023	Unix, SSH, Intro to Git ~~Working on Large Products~~ **Git Branching Lab**	Your SSH Public Key due 8/30 Team Formation Survey due 8/31 Welcome Assignments due 9/1 Read Agile Manifesto
2	9/5/2023	More Git Utilities Why Agile? Balls! 🛠 **Team Formation Finalized**	9/7/2023	Intro to Virtualizations Teamwork & Agile Roles **Virtual Machines Lab**	**Git Branching Lab** due 9/4 Read MMM Ch. 1-2
3	9/12/2023	Discuss MMM Ch. 1-2 Product Feature Discovery 🛠 **Initial Client Meeting**	9/14/2023	(*Self-organization day*) 🛠 **User Story Mapping** **Legacy Web App Lab**	**VirtualBox Lab** due 9/15
4	9/19/2023	Containerized Web Server HCI Persona Development **Docker Lab**	9/21/2023	Modern Web Architecture Product UI/UX Mockup **Intro to Django Lab**	Team User Story Map due 9/20 **Legacy Web App Lab** due 9/20 **Docker Lab** due **9/22**
5	9/26/2023	Agile Ceremonies Release Planning Methods **Dockerized VS Code Lab**	9/28/2023	Agile Tools Setup / Catch up 🛠 **Initial Release Mapping** **Intermediate Django Lab**	**Intro to Django Lab Quiz 1-2** due 9/28 **Intro to Django Quiz Lab** due 9/29 Read MMM Ch. 3-4 Read Aim, Fire
6	10/3/2023*	Discuss MMM Ch. 3-4 Agile Role Responsibilities 🛠 **Product Release Kickoff**	10/5/2023*	Unit Tests and TDD Goal Setting & OKRs 🛠 **Team OKR Meeting**	*Sprint 1, week 1* ~~Finalized Project Proposal due 10/4~~
7	10/10/2023*	Fall Holiday 🍂	10/12/2023*	Retroactive Prime Directive Retroactive Techniques	*Sprint 1, week 2* **All Other Django Asgmts** due 10/12 Team OKRs due 10/13 Read MMM Ch. 5-9
8	10/17/2023*	Sprint Reviews & Demos 🛠 **Review, Retro, Planning**	10/19/2023*	Discuss MMM Ch. 5-9 Lean Agile (Kanban)	*Sprint 2, week 1* Preliminary Perf. Reviews due 10/18
9	10/24/2023*	QA-ing Software Products **Test Cases Lab**	10/26/2023*	Automated QA **Selenium Lab**	*Sprint 2, week 2* **Test Cases Lab** due 10/27
10	10/31/2023*	Progress Check-in 🛠 **Review, Retro, Planning**	11/2/2023*	Discuss MMM Ch. 10-15 **GitHub Actions Lab**	*Sprint 3, week 1* **Selenium Lab** due 11/1
11	11/7/2023*	(Class Cancelled) 🛠 **Ext. Contributor Meeting**	11/9/2023*	CI/CD Worksheet	*Sprint 3, week 2* Midrelease Perf. Reviews due 11/10 Read EtBT Part 1
12	11/14/2023	🛠 **Review, Retro, Planning**	11/16/2023	Discuss EtBT Part 1	*Sprint 4, week 1* **CI/CD Worksheet** due 11/14 Read EtBT Part 2
13	11/21/2023	(Pre-thanksgiving hang)	11/23/2023	Thanksgiving Holiday 🦃	*Sprint 4, week 2* Read EtBT Part 3 **CI/CD Extra Credit (early)** due 12/8
14	11/28/2023	🛠 **Review, Retro, Planning**	11/30/2023	Discuss EtBT Part 2 Managing Software Teams	Product MVP Completion due 11/28 *Sprint 5, week 1*

15	12/5/2023	Discuss EtBT Part 3 Ethics in Computing	12/7/2023	🛠 **Release Retrospective** 🛠 **Team OKR Review**	*Sprint 5, week 2* **CI/CD Implemetation** due 12/8 Final Perf. Reviews due 12/8
Finals		**Final Presentations: Product Lauch** Thursday, 12/14 3:00-5:00 pm			Extra Credit Assignments, Final Performance Reviews, and Final Product Artifacts due 12/15

* Candidate for observation