

Math 150 + 15E at San Diego Mesa College (with Kelly Spoon)

Units: Calculus and Analytic Geometry I (5 lecture units) + Trigonometry Refresher (1 lab unit)

Students register for two separate courses that are hard-linked, but the target course and support course are integrated, focusing on just-in-time support for calculus when needed.

Placement into Calculus: All STEM students have access to Calculus with support. Students who have not successfully completed precalculus (Math 141) must take Math 150X (Calculus with Support)








Schedule: My section is scheduled three days a week with Math 150 MW 8:35-11am and the Math 15E F 8:35-11:45am, though all class time is used fluidly. The other sections at my campus meet four days a week and have Math 150 MTWTh 10:50am-12:00pm + Math 15E TWTh 9:35-10:35am or Math 150 MTWTh 12:45-1:55pm + Math 15E TWTh 2:10-3:10pm. Our sister colleges: City schedules similarly to mine, Miramar does support as WEB.

Embedded Tutors/Supplemental Instructor: Classes may have a student employee who is an embedded tutor through our tutoring program or a peer mentor through our HSI grant. They attend classes and help to facilitate group work or provide assistance to students who need additional support. Embedded tutors hold 1 hour session per week for the specific class they are assigned to. Peer mentors provide hours for tutoring.

Textbook: None, resources are combined from multiple sources on Canvas shell/

Canvas: Our school uses the Canvas LMS and both the target course and support course have their own separate Canvas; however, only the target course is published with all materials and grades housed there.

Grading in Math 150 (letter grade):

-  DeltaMath Knowledge Checks (20%) - online 'quiz' with a chance at recovery where students complete 3 of each problem type missed, for full points, a student must complete the original Check at 90% or the ReCheck (recovery) at 100%. Focus is on conceptual questions.
-  Quizzes (30%) - weekly quizzes have two questions, more on the computational side, chosen from the standards for the week. Graded as 0 = minimal understanding or communication, 1 = developing understanding or communication, 2 = substantial and complete understanding and communication. Can retake quizzes typically up to 3 times.
-  In-Person Exams (30%) - Two exams, one on differentiation techniques and one on integration techniques. Students may retake one exam on the day of the final exam.
-  Portfolio Assignments (10%) - Three portfolios, one on limits, one of applications of derivatives, and one on applications of integration where students demonstrate their understanding and reflect on their learning.
-  Final Exam (10%) - cumulative, including content covered in portfolios.
-  Class Work and  Online Practice (0%) - classwork and online materials other than their weekly knowledge checks are not graded. Goal is that grades are based as much as possible on understanding and as little on compliance as possible.

Grade in Math 15E (pass/no pass): Students who pass the target course receive a 'P' in the support course. Students who do not pass the target course receive a 'NP' in the support course.


Typical Class Day (2.5 hours)

1. Warm up (15-30 minutes): Students do an active warm up that builds curiosity for the day's topic and/or is retrieval practice for the previous meeting's topic. Examples include card sorts, notice and wonder, WODB, Open Middle problems. While students work in groups on warm up, the embedded tutor circles around the room providing assistance while I listen to conversations to highlight student voice in the debrief summarizing the concepts covered and introducing the topic for the day.
2. Mini lecture (15 minutes): Depending on topic, may provide a quick lecture of the communication skills needed for the board work. For example, working with analytical limits for the first time, one worked example where factoring was used was provided, with discussion about what the limit notation meant, common communication errors, and steps necessary to communicate appropriately.
3. Board work (60 minutes): Students are randomly assigned to groups of 3 using a deck of cards and sent to whiteboards and wipebooks around the room based on their card number. They then work through a series of problems to work through with their group, starting with an example similar to what they have already seen (either in a prior class if no mini lecture or similar to the example in the mini lecture) and moving towards problems that introduce other possible situations. In the analytical limits example, the first example was a factored rational expression, second required students to factor, third was factorable but not $0/0$, fourth was complex rational... While groups are working, I check in with each group about any communication errors visible in their work. When most groups have finished a problem, we briefly discuss a solution from a group and how the problem differed from the one before it before moving onto another problem. We typically do ~10 questions at the boards.
4. Consolidation (20 minutes): Students fill in a one-page set of lecture notes based on what we discovered during the board work, including a few worked examples.
5. Group work (30 minutes): Students have an opportunity to practice what they have learned with a skill builder worksheet or another activity. Solutions are posted to all classwork provided on Canvas, so students can work through the problems on their own to check their understanding or take the problems to embedded tutoring sessions after class.
7. FRIDAYS ONLY Quiz + Requizzes (40 minutes): Students take a written quiz on two main topics of the week. When they finish, they can retake quizzes from a previous week, if they are still open and still need to show their understanding.

Additional information about our class:

Canvas Modules contain:

- 🌱 Prepping for ____: a page with videos and support materials for the week's content. There is also an optional 🌱 assignment on their homework system if they want to practice prereq skills needed for the week. These are ungraded, but suggested each Friday as we leave class for those who are concerned about their prep work.
- 📖 Content Pages: a mix of video and text for the topics of the week, for students who want a bit more lecture, with links out to resources for them to explore deeper.
- 🧩 Class Recaps: Set as assignments, since I enter grades based on participation that don't count for anything, but include an overview of the class meeting with resources provided. All notes are housed on a OneNote for EDU, along with worked board work.
- ✅ Check: An assignment with a link out to DeltaMath knowledge check

-  Quiz: A page explaining which two topics will be on quiz for the week, individual assignments are later added for each topic with solutions.