

# Syllabus

**Programming in Scratch** will be a course about just that - how to make computer programs using one of the friendliest programming languages ever created.

This course is listed as a Computer Science course. That's because programming is an important tool that computer scientists use in their work. However, that *doesn't* mean that computer science and programming are the same thing: computer science is the study of how computers work and what we can do with them, while programming is simply one way to write out those solutions. So, a huge focus of this course will be not just on how to use Scratch, but how to solve interesting problems and make cool things with the help of a computer.

## Structure

The course has ten main lessons, each of which should take about three hours to complete. Each lesson introduces some new concepts in Scratch by way of a mix of videos, text instructions, and practice questions. After the new concepts are introduced, you'll have a homework assignment and a quiz to complete.

Here's a brief outline of what the lessons will cover:

- Unit 1: Moving blocks, creating scripts, and repeating blocks
- Unit 2: Drawing with a computer
- Unit 3: Tempo, variables, and the hat block
- Unit 4: Coordinates and conditionals
- Unit 5: Drawing with iteration
- Unit 6: Broadcast and random numbers
- Unit 7: Updating variables in repeats, iterative development, and the ask and join blocks
- Unit 8: Scratch tools, gravity, and mazes
- Unit 9: Building your own blocks
- Unit 10: Strategies for games

After you've completed all of the units, you'll have the opportunity to design your own final project.

## Schedule

In this course, *you can work at whatever pace you want*. **The courseware will be available until October 9, 2016**. After that date, we will issue certificates to the students who have completed the courseware with a passing grade. Alternately, if you want to continue to work with the courseware after that date, that's fine too—while you may not be able to submit all of your assignments before the course officially ends, all of the courseware will still be available when you're done.

If you are interested in earning a verified certificate, be aware that **the last day to sign up to receive a verified certificate in the course is September 30, 2016 at 23:59 UTC**. After this time you will no longer be able to opt to receive a verified certificate in the course.

You're encouraged to take this course at your own pace. However, we suggest that you choose one of the following options as a way to schedule the course:

- **Intensive:** Spend 3 weeks working through the courseware. Complete four lessons each during the first two weeks. During the final week, complete the last two lessons and your final project.
- **Fast-paced:** Spend 6 weeks working through the courseware. Complete two lessons each week for five weeks, and complete your final project during the final week.
- **Easy-going:** Spend 11 weeks working through the courseware. Complete one lesson each week for ten weeks, and take a final week to complete your final project.

## Grading Policy

All assignments—homework, quizzes, and projects—**will be due (and graded) at the end of the course.** Here's how your total grade will be calculated:

**Homework** - 50%

**Quizzes** - 35%

**Projects** - 15%

To get a certificate in this course, you need to get a cumulative grade of **60%** or higher by the time this course closes on October 9th. The course will be archived at that point; you can feel free to continue to look at the lessons, answer questions, and even explore discussion boards at that point, but no one will be moderating the course and no additional certificates will go out until the next time this course is offered.

## Homeworks

Homework assignments form the largest part of your grade. The idea is pretty simple: you'll be asked a series of questions for how to complete or interpret excerpts Scratch code. You have five attempts to complete the question and get credit on it, so it's ok not to get it right the first time.

For your first attempt on any problem, we recommend that you don't make any program in Scratch to test the answers unless the instructions say otherwise. You should be able to answer the questions with just the information provided. At worst, you'll have used one attempt of five, at which point you can start testing out the solutions in Scratch.

Feel free to look at the course content, including the videos and questions. Solution explanations are visible either after all submissions are used or after you get a question right.

## Quizzes

Quizzes are a lot like homework assignments, though they should take a bit less time. However, they are graded a bit more strictly, with only two attempts allowed per problem (so you won't be able to try out every answer, but you can correct a typo or other simpler errors).

These should be completed without using any other resources, including notes, the internet, Scratch, or the course content. Solutions are visible after all submissions are used or after you get all questions right.

## Projects

There are four projects in the course, which are designed to be more open-ended opportunities to

explore Scratch and use your skills to make something cool. You may want to just test things out for ten minutes, or create a masterpiece in an hour or two: that's totally up to you. We just ask that you report back to us which concepts from the section you used, which we use to assign a grade for the section.\*

*\*Note:* A huge piece of this course is about the ideas that you test out by opening Scratch and creating programs there. While we won't be able to grade those assignments directly, **the most important things you'll take away from this class will come from actually programming in Scratch.** So, don't skip straight to the homework and quiz questions - not only will those assessments be harder without completing all the other work, but you'll also be missing out on the best parts of the course.

### **Credit Disclaimer**

Completion of this course does not constitute a formal course of study or earned credit at Harvey Mudd College.