Online Learning Strategies for AI4ALL

All of our learners have the ability to be changemakers and leaders and can make a positive impact on the world around them.

We believe that the potential for AI hinges on being developed by a workforce that is technically rigorous, diverse, and ethical. Our learners, part of the current and future workforce of AI, are:

- **Capable** of learning AI and influencing its development,
- **Creative** in applying their AI skills to problems that they care about, and are
- Part of a **community** that is influencing the present and future of AI.

This guide was created to help you and your students connect with these ideas in an online learning setting.

First, we wish to recognize that many of you are currently teaching online, and were not expecting to do that even a month ago. We understand that you are doing the best you can under very weird circumstances, and echo the sentiment of this Adjusted Syllabus and this article highlighting challenges students and teachers are facing with the transition. We also recognize that you are probably currently inundated with online resources, and wish to ease, rather than add to, the overwhelming nature of this transition.

This document recommends several online resources that we expect to be particularly useful in a classroom using AI4ALL curriculum. As educators, we have used many of these resources in courses we have taught. (In the interest of disclosure, AI4ALL receives funding from Google.org and Microsoft, which own some of the tools and resources we recommend below, though this is not the reason we recommended the tools.)

Many of these strategies may continue to be useful as homework assignments or supplements when you are no longer online. You can combine them, choose one, or give students the opportunity to choose between them.

We love to see what your class has created! If you'd like, please share with us on Slack, email, or Twitter, tagging with #AI4ALLOpenLearning. If you would like to join our teacher community Slack group, please email us at openlearning@ai-4-all.org.

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Discussions

All AI4ALL curricula rely heavily on discussions for students to learn from each other and think deeply about the concepts. The Discussion Guide frames ways to hold those discussions in a classroom setting; this document provides a few alternative solutions for an online setting.

Ground Rules for Online Discussion

In all cases, make sure to discuss norms with your students for each forum type. Ensure they know how to respond kindly, and make space for each other. We recommend creating ground rules, possibly collaborating with your class to do so; remind them of these ground rules before each discussion.

Here are a few possible ground rules to set with your students:

- Participate
- Ask Questions
- Be Tactful
- Forgive Other Students' Mistakes
- Be Concise
- Cite Your Sources
- Respect Each Other's Privacy
- Embrace Diverse Thinking

Open Learning Platform Forums

Every discussion question in the curricula also has a forum associated with it. The forum allows your class to share their answers with people in all the other classes that are using the Open Learning curriculum. This allows you to compare contacts and connect to each other.

The downside to the open nature of the forum is that it may be hard to find your own students' responses. If this is a problem for you, you can use other means for grading the students' discussions (a few examples are below), and the forum itself as a place for students to connect to other students around the world.

You can also answer questions on the discussion forum! Model productive, positive comments on the discussion. Keep the conversation lively, and model positive productive responses.

The forum is at the bottom of curriculum pages on the Open Learning platform. There are three forums:

- Curriculum discussions: these are the discussion questions that are written in the slides of the curriculum.
- Learner created discussions: if you or your students come up with interesting questions to add to the ones that are already in the curriculum, please add them here!
- Questions about the curriculum: this is where you can put your questions for the AI4ALL team. We'll check approximately daily and answer them.

Multimedia Discussions

Any of the more in-depth discussion questions from the curriculum can be answered in collaborative video formats. Students are often excited to create videos and see each other in videos. It has somewhat more of the feel of being in person.

There are two platforms we particularly recommend:

- Flipgrid: Flipgrid is a free online video response platform. Students can record video answers to a prompt, watch each other's videos, and create video answers to each others' videos. We'd recommend one grid per lesson, with different topics for each discussion topic contained within that lesson.
- Padlet: Padlet is a virtual bulletin board where students can collaborate and share resources; it has more versatility than Flipgrid in that you can also use text, pictures, etc. We recommend a "shelf" Padlet for asking multiple related questions; each Padlet can be for a lesson with shelves for each discussion topic. You can only have 5 free Padlets at a time.
- Synth: Synth is a platform for creating short (256 second) podcasts. We recommend one podcast per topic. Synth allows you to create accounts for your students, with different privacy settings. You can learn more from their Educator page. If you'd like your students to create longer form podcasts, you can use podcast software like Anchor.

Online Chat Discussions

There are several digital platforms that allow people to asynchronously talk to each other in different topic-oriented channels. You can create your own server for your class. From there, you can create "channels" for each discussion topic you have; we recommend organizing channels by lesson with the associated discussion topics.

There are three platforms we particularly recommend:

- Slack: We already use Slack to connect teachers to our curriculum team and to each other (please email openlearning@ai-4-all.org if you would like to be added). Students can respond to each other in threads. You can create your own Slack workspace and invite your students. The free version allows you to access the most recent 10,000 messages in your workspace. The discounted education version has no limit on message storing. You can also initiate voice and video calls via Slack.
- Discord: Discord is free for everyone, and also allows you to organize chats by topic. You can create your own server in Discord and invite your students. Discord does not allow for threads, but is otherwise similar to Slack. Discord lets you to have voice channels, and to call people directly.
- Google Classroom's Stream feature, for those already on the platform.

Blog

Blogging allows your students to answer questions in a format that feels more permanent than the chats described above. It allows them to think in long-form. You can watch as their ideas and writing skills develop over time. Having a blog can also help students feel like they have an authentic audience for their work.

We recommend having students create blog posts for each discussion topics, or for some of the broader unit-long synthesis discussions. Students can respond to each other's blog posts in comments. They can link their blog posts in Open Learning platform forums.

There are several blogging platforms that are free, such as Wordpress and Blogger. Edublogs by Wordpress allows you to have a classroom blog that students can independently add to. For more information on classroom blogs read this How to use class blogs article.

Lectures

The materials on AI4ALL's Open Learning platform were originally designed for teachers to share with their students. It is, however, still possible for students to simply read the slides themselves. For more information on how to allow students to annotate slides as they read them see the Reading section of this document.

We also believe connection is important, and that multimodal presentation is important, so you may still want to lecture with your students.

Asynchronous Lectures

You can lecture students asynchronously by recording your lecture beforehand. If you do this, we recommend that you record both your screen and your face because it feels more personable.

Possible software to do this:

- Loom is free, works as a download or in your browser, and also lets you create screencasts with your face in the corner. You can share Loom videos with a link.
- Screencastify works as a Chrome extension and lets you share videos directly to YouTube or Google Classroom.

Synchronous Lectures

You can also have lectures with your students via video chat at a set time. There are lots of video chat options available. We recommend that any video chat software you use allows you to share your screen, so you can still show students what slide you are on.

It is also possible to synchronously be on chat while your students are watching a pre-recorded video at the same time. This blog post describes a computer science teacher doing just that.

Video chat software options:

- We use Zoom, though if your lecture lasts over 40 minutes Zoom will not be free.
- Google Meet is now included in Google Classroom.
- Microsoft Teams allows you to invite specific email addresses to your meeting.
- Jitsi is free and allows you to see students' raised hands and use gallery view so you can see all your students at once, though it does not allow screensharing yet.

Combination

Many video chat software options allow you to record, which allows you to combine the synchronous and asynchronous lecture methods. If you can record the video call, you can give the lecture synchronously with students that can show up at the designated time, and record it for other students to watch later. To allow students to schedule a time to connect to you, you can use a tool like Calendly.

Streaming Video

You can share your screen and sound while showing a video to your students on most video chat software.

Virtual Lecture Ground Rules

It can be challenging to ensure that everyone feels heard on a video call. Set up some norms with your students. Some recommended norms:

1. Keep one unmuted mic at a time.
2. Use text or hand-raising to join a queue before the teacher calls on you to speak.

Programming

The Sentiment Analysis + NLP curriculum involves teaching students programming. Programming provides challenges in an in-person classroom setting as to when the students should have access to their computers. In a virtual classroom, students are already on their computers the whole time.

We recommend converting your programming lectures to asynchronous videos that your students can follow while programming their own.

We are already recommending the use of Google Colab notebooks for programming, which allow students to share work with you the way they would share a Google Doc.

Programming can be particularly challenging for students. If at all possible, you should be available to your students at some specific time or place to answer questions. This place can be an office hours video/voice call, or a Slack group or similar. To allow students to schedule a time to connect to you, you can use a tool like Calendly.

Readings

A lot of the AI4ALL Open Learning Curriculum links out to articles that you can assign the students to read in order to gain a more in-depth understanding of what is in the slides. If you are not able to lecture your students in one of the above manners, you will also be assigning slides as reading. The strategies below will help you understand what your students are getting out of the readings.

Annotating text

Annotating a document directly in the document allows students to show you their understanding of a text, and ask questions. Collaborative annotations can encourage students to discuss the text with each other as they read, responding to each other's annotations.

There are several tools online that will let students do this collaboratively, two of which we have highlighted below:

- Hypothesis is a tool that allows you to create an annotatable link from a link of your choosing. Students can annotate and comment on each others' annotations.
- Diigo allows you and your students to tag, bookmark and annotate links to share with each other.

Checking for Understanding

Google Forms allows you to create multiple pages of content. It is possible to provide students with small passages, quick checks for understanding in the form of a multiple choice question, and then send them to different pages of the survey based on their answers. This also helps level texts; students who need more work based on their answers can get it. This guide will help you use pages in Google Forms.

Group Projects

Creating Groups

Google Classroom allows you to break your students into groups and assign different taste to different groups. For more information on how to do that, read this article.

Zoom allows breakout groups for students to discuss while still having a central room that everything connects back to. As the moderator, you can hop between breakout rooms.

Brainstorming

You can create chat channels for specific groups using any of the software discussed in the Online Chat Discussion part of this document.

If you are using Google Classroom Groups, your students can collaborate on the same paper.

Students who have an easier time brainstorming through drawing can use collaborative whiteboard software such as AWW app. AWW app does not require a login; to share with another person you send them the invite link. When you are finished with your brainstorm, you can export it as a PDF.

Planning

There are several online project management tools that allow users to break tasks down into smaller pieces, assign each of those pieces to different team members, and keep track of what

they have to do eventually, are doing, or are done with. Meistertask is one example of a free online piece of software that allows students to keep track of tasks this way.

Presentations

AI4ALL's Open Learning curricula offer students opportunities to create projects and share them with their peers.

They can do this on any of the forums discussed in the "Discussion" section of this document.

It is possible, however, that you or they may want more of a long-form presentation for final projects. Below are some easy ways for students to express their understanding with you and their class.

Slideshows

- Google Slides comes with Google Classroom and Google Drive, which is free. Students Can create slideshows much as they would with Powerpoint, and share them with you.
- Prezi allows students to create presentations that allow viewers the ability to zoom in and out on different sections

Screencasts

- Any of the software described in the asynchronous lectures section of this document will also work for students; screencastify's connection with Google Classroom makes it particularly easy for students to work with and share with you.

Visual Storytelling

Creating comics provides students with a fun way to think about their projects as a story.

Possible comics-creating software:

- Comix: free, and unless you want to come back to something later does not require a login. You can print or email comics
- Pixton: Pixton is also free, and slightly more polished, but requires a login. You can create a class with Google IDs of your students, or have them create IDs and use your class' join link to share their work.

Regardless of the tech you choose, it will be helpful to give students some toy projects to try exploring the tech that they will be using before having them create their major on-topic projects.

Other resources about teaching online

Online instruction activities
Guidelines for accommodating IEPs and 504s in online instruction
Accessibility in online teaching
Comprehensive guide on online pedagogy
Collections of online tools

- Searchable site of digital online tools from ISTE

- List of tech resources
- Google slides with pedagogy and tools