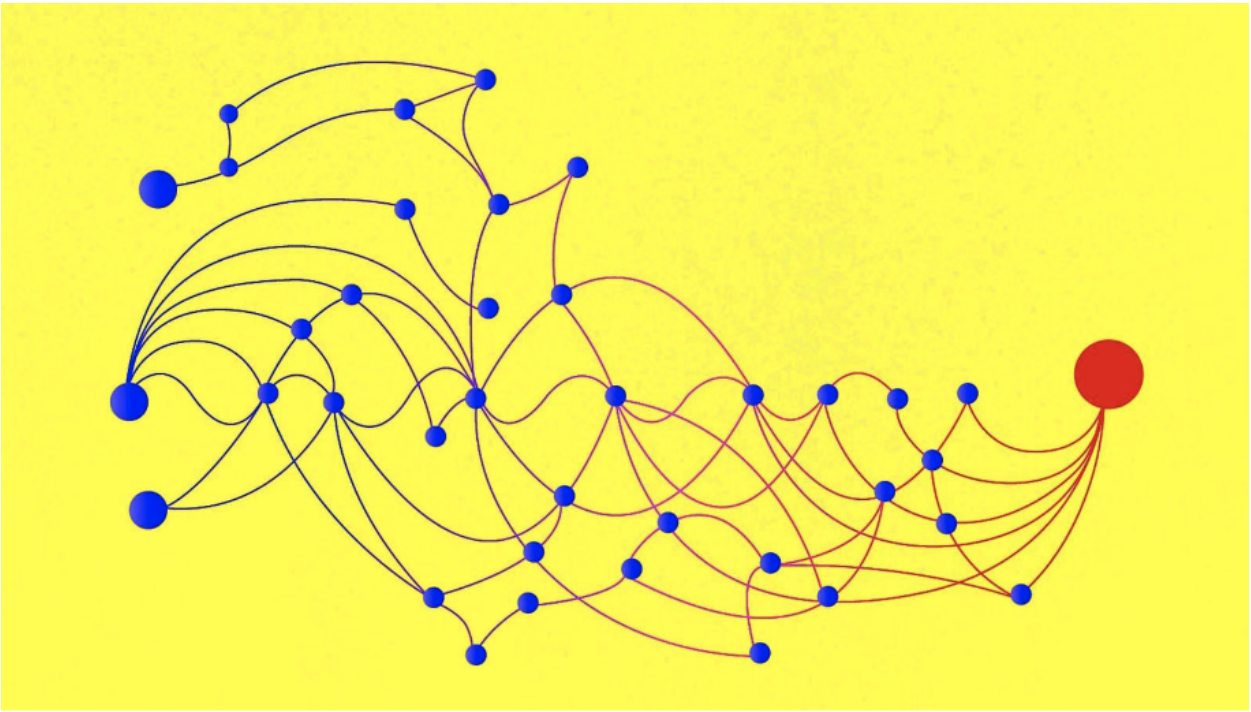
Stanford
Center for Professional Development

XCS330 Deep Multi-Task and Meta Learning

Course Syllabus



Graduate Education
Professional Certification
online | at Stanford | at work

Welcome

XCS330 Deep Multi-Task and Meta Learning is a professional course based on graduate-level material from Stanford's on-campus course CS330.

- Learn from Stanford graduate lecture videos (Fall 2022) that have been edited and segmented by topic for easier navigation, reference, and review.
- Complete guided homework assignments implementing content covered in the course lectures.
- Receive support from Stanford-affiliated Course Facilitators.
- Connect to a cohort of peers from diverse locations and professional backgrounds.

Course Platforms and Tools

SCPD Learning Management System: accessed via the mystanfordconnection site which you used to enroll in this course.

GitHub: to distribute code and data for the assignments.

Slack: for additional course support and class discussions.

Azure Lab Services: cloud computing resources for assignments 3 and 4.

Important Dates

January 19 **afternoon Pacific Time: Slack and GitHub invites sent** (Accept within 7 days)

➔ *Did not receive the Slack invite and it's **not in your spam**?*
- http://XCS330-scpd.slack.com/
- I have a Guest Account
- Log in using your credentials

➔ *Did not receive the GitHub Invite?*
- Email xcs330-staff@stanford.edu
- Let us know if you'd like to receive the invite to a different email

January 22 **noon Pacific all lecture videos become available.**
- Log in to your mystanfordconnection account
- Click on the link titled "Course Videos and Assignments"

➔ Here is a video on how to navigate the course portal.

January 22 **evening Pacific Time Course Facilitator connection emails sent out to learners.**

➔ Course Facilitators serve as your primary point of contact for content and assignment related questions

February 9 **at 5:00pm PST Drop/Transfer Deadline**

Deadlines and Pacing

Course Start: January 22 **Course End:** March 31

Below is a *suggested* pacing guide. Please, note the assignment deadlines (all **11:59 PM Pacific**).

Week	Suggested Videos	Assignments		
		Release Date	Regular Deadline	Late Deadline
1&2 Jan 22 - Feb 4	Introduction: Deep Multi-Task and Meta Learning PyTorch Tutorial Building multi-task learning systems Transfer learning Black-box approaches Optimization-based approaches	January 22	**Assignment 1** February 4	
3&4 Feb 5 - Feb 18	Non-parametric approaches Meta-learning properties and case studies Contrastive learning Reconstruction-based unsupervised pre-training		**Assignment 2** February 18	**Assignment 1** February 9
5&6 Feb 19 - Mar 3	Task-construction Large-scale meta-optimization Bayesan models Bayesan meta-learning approaches			**Assignment 2** February 23
7&8 Mar 4 - Mar 17	Domain adaptation Generalization		**Assignment 3** March 10	**Assignment 3** March 15
9&10 Mar 18 - Mar 31	Lifelong learning In-context learning Open problems in meta-learning		**Assignment 4** March 31	**Assignment 4** April 5

Late Deadlines and Penalty Waiver

Late Deadlines: All assignment submissions can be turned in up to five days late and are assessed a penalty of -1 point per late day. After five days, the submission link will close, and entries will no longer be accepted.

Penalty Waiver: You have the option to remove late penalty points from any one assignment.

Requesting a Penalty Waiver: contact your Course Facilitator or xcs330-staff@stanford.edu. All requests will be applied at the end of the course.

Assignments and Grading

Here is a short description of each assignment.

Coding Questions: are graded automatically upon upload and can be submitted up until the late deadline. Click here for an example.

Written Questions: will be manually graded by Course Facilitators no later than one week after the assignments 'on-time' deadline. Click here for an example of the submission process.

Note: All assignments require prior knowledge of machine learning principles.

Certificate Requirements

The course is pass/no-pass, and no letter grades are granted. To pass the course, you must achieve a total score of 70% or higher on the assignments. Upon successful completion, you will receive a digital course certificate.

- There are a total of 200 base points (meaning 140 to achieve 70%).

Deliverables	Points
Assignment 1	20
Assignment 2	50
Assignment 3	60
Assignment 4	70
Total Available	**200**
Minimum Passing Total	**140 (70 %)**

Course Facilitators and Support

We encourage posting any class/content-related questions in relevant Slack channels. This way, you'll likely get a faster response from either the course staff or your classmates. However, before you post, make sure you're familiar with the important course policies.

Additionally, starting from the first day of the course, you'll be connected to a Course Facilitator (CF). who will be your primary point of contact for content and assignment inquiries. They'll each lead a smaller group of learners, providing personalized support. Your Course Facilitator will keep you informed about important reminders and their availability for questions, potential online office hours, and 1:1 sessions.

Note on Code Assignments and Debugging

While the course team is here to support your experience, it is ultimately your responsibility to write, test, and debug your own coding assignments. Before reaching out to a CF or posting your question in Slack, it's expected that you have taken the reasonable step of performing an analysis yourself. CFs may view and provide guidance on your work; however, they will not provide exact answers on what to insert into your assignments. This policy is meant to ensure that you leave the course having mastered the material and enables CFs to focus on questions where their guidance is most impactful.

Drop/Transfer Policy

We don't want to see you go, but if you decide this is not the right course or time, you have two options: either **drop** the course OR **transfer** to the next iteration of XCS330 or another course in the AI Professional Program. To request a drop or transfer, email xcs330-staff@stanford.edu (please, specify what you'd like to do).

Up until January 22	No cost for drop/transfer. If you drop, you will get a full refund.
Up until February 9	Once the course has begun, there will be a drop/transfer fee of $200, i.e.: If you request a drop, you will be reimbursed 100% of your tuition minus $200. If you request a transfer, there will be a $200 fee in the form of an invoice.

Important Note: Beyond the third week of the course, tuition fees are not granted

Important Policies

Honore Code

Students will be asked to review and maintain the standard set forth by the Stanford Honor Code when completing quizzes and assignments in this course. You can review the section labeled Violations of the Honor Code for representative examples relevant to this course.

Students are strongly encouraged to form study groups, discuss, and work on homework problems in groups, and help each other; However, each student must write down the solutions independently and cannot refer to written notes from the joint session. **In other words, you must understand the solution well enough in order to reconstruct it independently**. Further, because we occasionally reuse assignment questions from previous years, you are expected not to copy, refer to, or look at the solutions in preparing your answers. It is an honor code violation to intentionally refer to a previous year's solutions

After completing this course, you are welcome to share your experience and credentials with others; however, **it is considered a violation of the honor code to share assignment solutions including on public platforms such as GitHub**. Faculty in the computer science department have strongly encouraged us to refrain from posting solutions for assignments, thus we ask that you **DO NOT** share the exact code.

Note on Networking

One of the benefits of this course is to be able to network with other course participants and create study groups. We encourage this kind of interaction and want to make sure that it is a positive experience. It is imperative that no course participant is made to feel uncomfortable or their ability to learn or otherwise benefit from the course is impeded by the actions of another participant. Please use good judgment. Keep interactions professional and focused on coursework or career networking. Avoid using offensive language and respect your colleagues' preferences regarding direct messaging. Please respect and uphold the rights and dignity of others regardless of race, color, national or ethnic origin, sex, age, disability, religion, sexual orientation, gender identity, or socio-economic status. Our team is always available either here in Slack or via email, so please feel free to reach out to us if you have any questions or concerns, or if any situation arises.

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