

# Deep Learning

## Syllabus

### Instructor Information

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Preferred Form of Contact: The Erdős Institute Slack

### Course Aim

This deep learning course has a hybrid format, where there are some lectures, but also many self-study and group-study components. The [FastAI book](#) serves as the foundation of the course. In order to receive a deep learning certificate, you must submit a (team-based) final project. To participate in this course, you must have completed the Data Science Boot Camp or passed a data science assessment.

### Brief Overview of Content

Every week, you will read chapters from two sources, which will allow you to learn the following content:

- Deep Learning Fundamentals ([FastAI book](#))
  - Deep Learning Basics
  - Classification and Regression
  - Recommender Systems and Tabular Modeling
  - Computer Vision
  - Natural Language Processing (NLP)
  - Transformers
  - Productionization
- PyTorch Implementation ([Deep Learning with PyTorch](#))
  - Tensors and Neural Networks
  - Computer Vision
  - Deployment

### Course Information

#### Prerequisites

To participate in this course, you must have completed the Data Science Boot Camp or passed a data science assessment. The reason for this is that deep learning is an advanced topic and

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requires basic data science knowledge. Similarly, understanding Python and GitHub is essential for deep learning mastery.

## Our GitHub Repository

The GitHub repo contains summary code for each of the FastAI book chapters in our syllabus. These notebooks can be used as study guides and will allow you to easily find reproducible FastAI code. You can find the link to this repository under the “Program Content” section of the course website.

In order to gain access to this repository you need to add your GitHub profile information to your Erdős Institute profile. Please note that all of the summary code in our GitHub is based on the content in Jeremy Howard and Sylvain Gugger's [FastAI](#) book. The copyright of the FastAI material is:

```
@book{
  howard2020deep,
  title={Deep Learning for Coders with Fastai and Pytorch: AI Applications Without a PhD},
  author={Howard, J. and Gugger, S.},
  isbn={9781492045526},
  url={https://books.google.no/books?id=xd6LxgEACAAJ},
  year={2020},
  publisher={O'Reilly Media, Incorporated}
}
```

## Course Format

This course has 5 in-person meetings and weekly team meetings.

## Readings

There is a schedule on our course website with required readings for each week. Each week, you will:

1. Read through the corresponding [FastAI](#) and [Deep Learning with PyTorch](#) chapters on your own.
2. Form your own group to have weekly discussions based on the assigned readings. These meetings will be used to ask each other questions and to spark discussion about applications of deep learning in data science careers.

### **Group Projects**

In order to receive an Erdős Deep Learning certificate, you must complete a group project by the end of the program. Projects culminate in a five-minute pre-recorded project presentation video, annotated GitHub, and executive summary of your project.

### **Final Note**

We look forward to having you participate in the Deep Learning course! If you have any questions or concerns, do not hesitate to contact us on Slack. We do our best to answer promptly.