

Embedding the EPFLGraph Video Player into Moodle

Help your students revise the course by quickly navigating your lectures and searching by concepts.

Teaching Support Centre (CAPE) / Center for Digital Education (CEDE)

Feedback and Support: flexible-teaching@epfl.ch

More information: <https://go.epfl.ch/flexible-teaching>

The logo for EPFLGraph, featuring the word "EPFL" in red and "Graph" in grey.

How are videos indexed by EPFLGraph ?

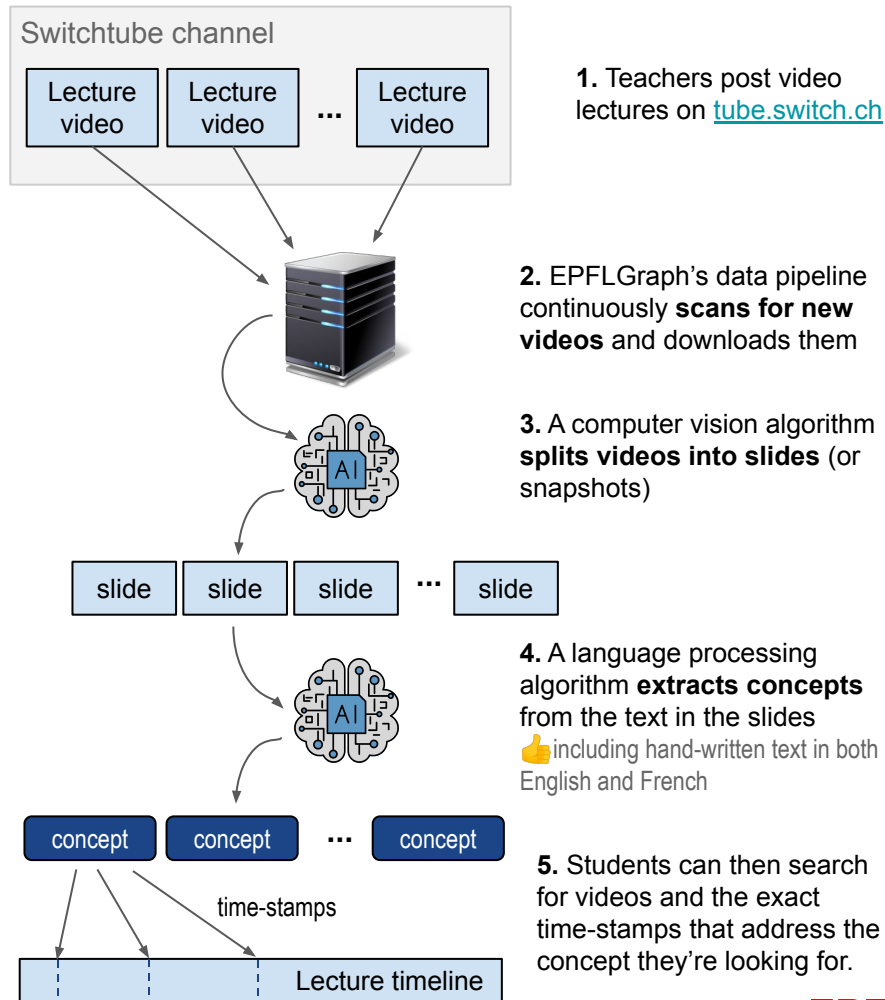
The [EPFL Graph](#) is a search engine that allows students to search for **courses**, **concepts**, and **learning resources**, and discover how they interconnect with each other.

With the advent of flexible teaching, we have added **video lectures** to the list of resources students can access and explore.

By connecting video lectures to our knowledge base—which includes a complete database of scientific concepts taught at EPFL—students can now **search for specific concepts directly on the lecture timeline**.

Concepts are automatically detected and time-stamped though the use of Computer Vision and Language Processing algorithms [see diagram on the right].

You can embed the EPFL Graph’s video player directly in your Moodle course page.



What is the EPFLGraph Video Player ?

Try it here: <https://graphsearch.epfl.ch/course/COM-417/>

- The video player displays a timeline with all the lectures collated one after the other. Vertical bars show the transitions between videos.
- Below the player there is the list of concepts that appear in the video (concepts are detected automatically through character recognition)

1. Clicking on a concept (e.g. Square-integrable function) shows a scrollbar which allows to jump directly to the places where the concept is present
2. The timeline highlights the spots in the videos where the concept was detected.
3. The preview shows the frame (or slide) that corresponds to the position in the timeline
4. Clicking on “Play on Switch” launches the video on SWITCHtube at the corresponding frame.

The screenshot shows the EPFLGraph Video Player interface. At the top, a handwritten note on a grid background discusses Jensen's inequality and conditional expectation. Below this, the 'Course Navigation' section features a slider to navigate through videos, with 'Currently on COM-417: Lecture 11.3' displayed. A 'Play on Switch' button is highlighted with a yellow circle. The 'Concept Navigation' section shows a grid of concept buttons, with 'Square-integrable function' highlighted. A yellow box highlights a specific spot on the timeline. Numbered steps 1 through 4 are overlaid on the interface, explaining the workflow: 1. Select a concept and scroll, 2. Highlighted spots show where the concept is present, 3. Preview the video frame, and 4. Watch the video.

Handwritten Note:

Jensen's inequality
If $\varphi: \mathbb{R} \rightarrow \mathbb{R}$ is convex & both X & $\varphi(X)$ are square-integrable, then $\varphi(\mathbb{E}(X|\mathcal{G})) \leq \mathbb{E}(\varphi(X)|\mathcal{G})$ a.s.
Conditioning w.r.t. a random variable Y
Def: $\mathbb{E}(X|Y) := \mathbb{E}(X | \sigma(Y))$
 $\mathbb{P}(A|Y) := \mathbb{P}(A | \sigma(Y))$
 $\mathbb{E}(X|Y)$ is the square-integrable & $\sigma(Y)$ -measurable random variable Z such that $\mathbb{E}((X-Z)U) = 0$ $\forall U$ square-integrable & $\sigma(Y)$ -measurable

Course Navigation. Use the slider below to navigate through the available videos.
Currently on COM-417: Lecture 11.3

Concept Navigation. Click on a concept to activate its navigation slider. Filter

Concepts: Stopping time, Conditional expectation, Stochastic process, Law of total variance, Optional stopping theorem, **Square-integrable function**, Martingale (probability theory), Integral, Probability distribution, Concentration inequality, Doob's martingale convergence theorems

Numbered Steps:

1. Select a concept and scroll
2. Highlighted spots show where the concept is present
3. Preview the video frame
4. Watch the video

Add the video player to your Moodle course

Step 1: Get the URL of your course on EPFL Graph

1. Go to: <https://graphsearch.epfl.ch/>
2. Search for your course
e.g. **“COM-417: Advanced probability”**
3. Copy the URL
e.g. <https://graphsearch.epfl.ch/course/COM-417/>
4. Modify the URL by adding **“/embed/lectures-of/”**
<https://graphsearch.epfl.ch/embed/lectures-of/course/COM-417/>

If you don't find your course, make sure to:

- Use a SWITCHtube channel to publish your videos. If you don't know how, have a look at [this guide](#).
- Include the course code in the name of your SWITCHtube channel, e.g. **“COM-417”**
- Set the privacy setting of your SWITCHtube channel to **“open”** or **“EPFL only”** but *not* to **“private”**.
- Drop us a note (graph-support@epfl.ch) with the link to your SWITCHtube channel so we can launch the indexing.

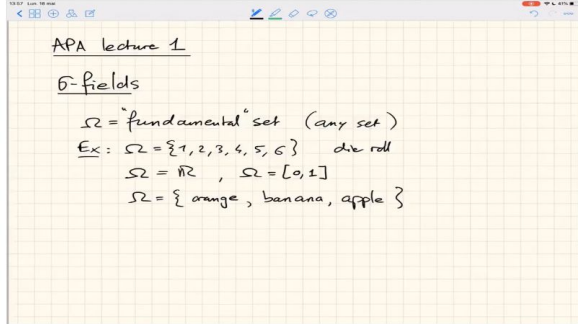
COM-417

Course

COM-417: Advanced probability / Advanced probability and applications

Olivier Lévêque

In this course, various aspects of probability theory are considered. The first part is devoted to the main theorems in the field (law of large numbers, central limit theorems), while the second part focuses on the theory of martingales in discrete time.



Course Navigation. Use the slider below to navigate through the available videos.
Currently on COM-417: Lecture 1.1

Play on Switch

Concept Navigation. Click on a concept to activate its navigation slider. Filter

Stopping time Conditional expectation Stochastic process Law of total variance

Optional stopping theorem Square-integrable function Martingale (probability theory) Integral

Probability distribution Concentration inequality Doob's martingale convergence theorems

Probability theory Law of large numbers Lebesgue measure Branching process

Sequence Probability mass function Local martingale Borel set Measurable function

Non-measurable set Discrete time and continuous time Probability space Markov chain

Large numbers Expected value Probability measure Large deviations theory

Add the video player to your Moodle course

Step 2: Add the link to your Moodle page

1. Go to your course on: <https://moodle.epfl.ch/>
2. Turn editing on
3. Click on “Add an activity or resource”
4. Select “URL”
5. Choose a name, e.g. “EPFLGraph video player”.
6. Paste the modified URL from the previous step under "External URL" (<https://graphsearch.epfl.ch/embed/lectures-of/course/COM-417/>)
7. Under “Appearance” select "Embed".
8. Click “Save and display”.

The picture on the right shows how the link is displayed in the [Moodle Activity Reference](#) course.

[Go to main site](#)

EPFL

MOODLE

FR EN DE

Activity Reference

Participants

Grades

What is the purpose of your course's Moodle site?

Communicating with your students

Setting up office hours

Getting feedback from your students

Helping students track their progress

Providing feedback to your students

Evaluating your students

Formatting your content

Linking to Videos

Getting started

Managing your course page

Dashboard

Site home

Calendar

Private files

My courses

FlipClass

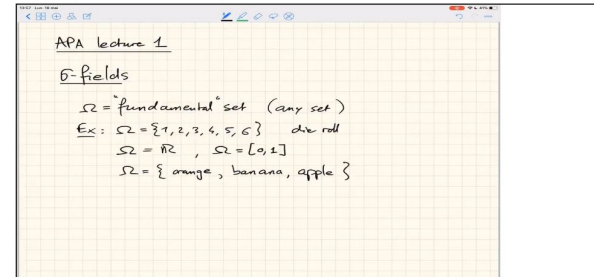
EffTeach

Moodle Activity Reference

Dashboard > My courses > Activity Reference > Linking to Videos > EPFLGraph Video Player (via a link)

[Moodle Docs for this page](#)

EPFLGraph Video Player (via a link)



Course Navigation. Use the slider below to navigate through the available videos.

Currently on [COM-417: Lecture 1.1]



Play on Switch

Concept Navigation. Click on a concept to activate its navigation slider.

Filter

- Stopping time
- Conditional expectation
- Stochastic process
- Law of total variance
- Square-integrable function
- Optional stopping theorem
- Martingale (probability theory)
- Integral
- Probability distribution
- Central limit theorem
- Concentration inequality
- Dob's martingale convergence theorems
- Probability theory
- Law of large numbers
- Lebesgue measure
- Branching process
- Sequence
- Probability mass function
- Local martingale
- Borel set
- Measurable function
- Non-measurable set
- Discrete time and continuous time
- Probability space
- Markov chain
- Large numbers
- Expected value
- Probability measure
- Large deviations theory
- Dominated convergence theorem
- Random variable
- Hilbert space
- Gumbel distribution
- Lebesgue integration
- Probability
- Martingale (betting system)
- Convergence of random variables
- Discretization
- Negligible set
- Jump process
- Emile Borel
- Continuity
- Non-negative matrix factorization
- Measure (mathematics)
- Symmetry
- CONvergence

Alternative: Embed the player into any webpage (or Moodle “Page” or “Label” resource).

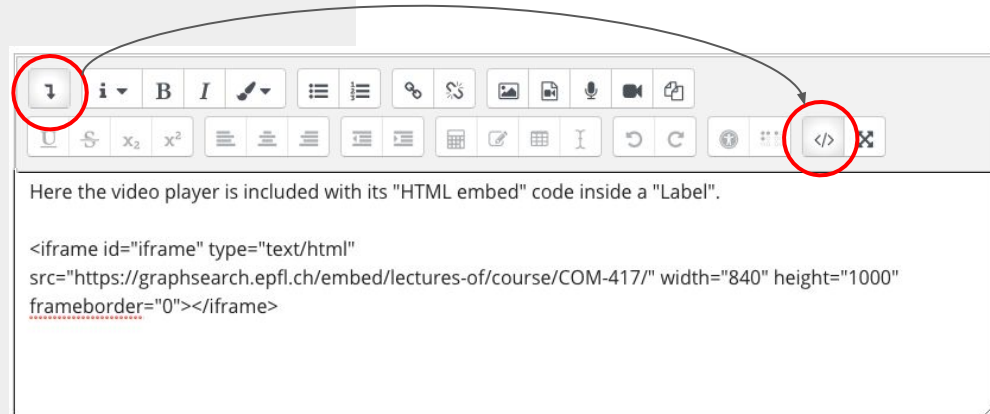
1. With the modified URL from the previous step
<https://graphsearch.epfl.ch/embed/lectures-of/course/COM-417/>
2. Use the following HTML code to embed the player anywhere:

```
<iframe id="iframe" type="text/html"  
src="https://graphsearch.epfl.ch/embed/lectures-of/course/COM-417/"  
width="840" height="1000" frameborder="0"></iframe>
```

3. For example in a “Label” or a “Page” in Moodle, or in any content management system that allows you to edit HTML code.

NB: Wordpress support to embed into EPFL’s website is part of our future plans ...

*Adding HTML code to a Moodle
Page or Label ...*



EPFLGraph is in development, feedback welcome !

<https://go.epfl.ch/flexible-teaching>

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graph-support@epfl.ch