What is a MOOC?

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Presentation Session on Massive Open Online Courses (MOOCs)
ENBIS, Prague, Sept. 8th 2015

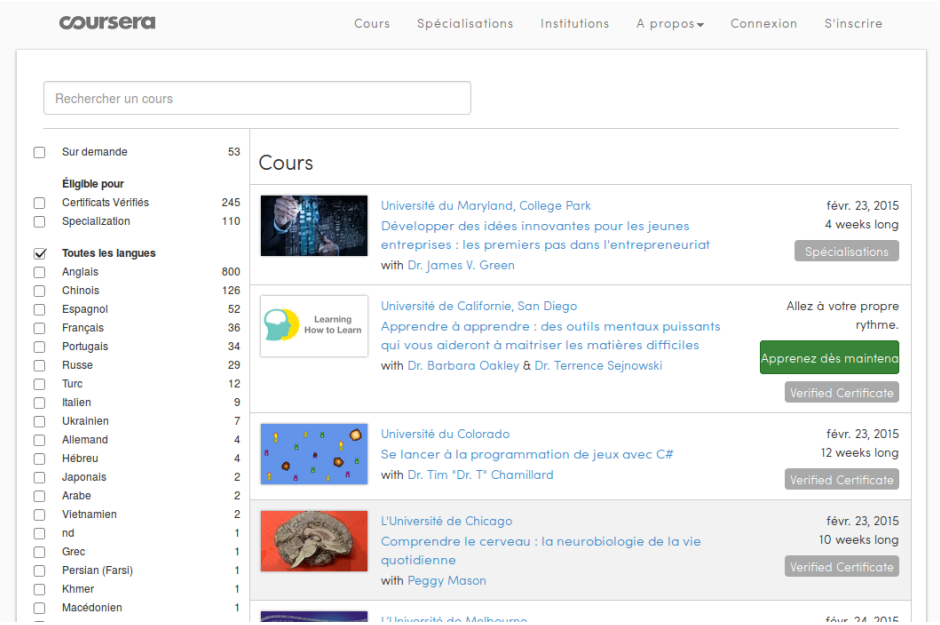
Definition

Massive Online Open Course

- On-line, MOOCs are generally released on a given platform which gathers several courses. The registration to the platforme is often free;
- they often use several tools related to new web technologies (videos, interactive pages, ergonomic navigation tools...);
- the course is simultaneously given for several thousands learners at a fixed period (*e.g.*, “Data Analysis”, J. Leek, JHU : 134 431, “Aléatoire”, S. Méléard, EP : 9 600, “Introduction à la programmation orientée objet en C++”, Chappelier et al, EPFL : 14 140);
- active cooperation between learners via forums;
- wide range of topics: some are very general (“Statistics one ”), others are highly specialized (“Data management for clinical research ”).

Some MOOC platforms non exhaustive list, restricted to platforms I have already tested

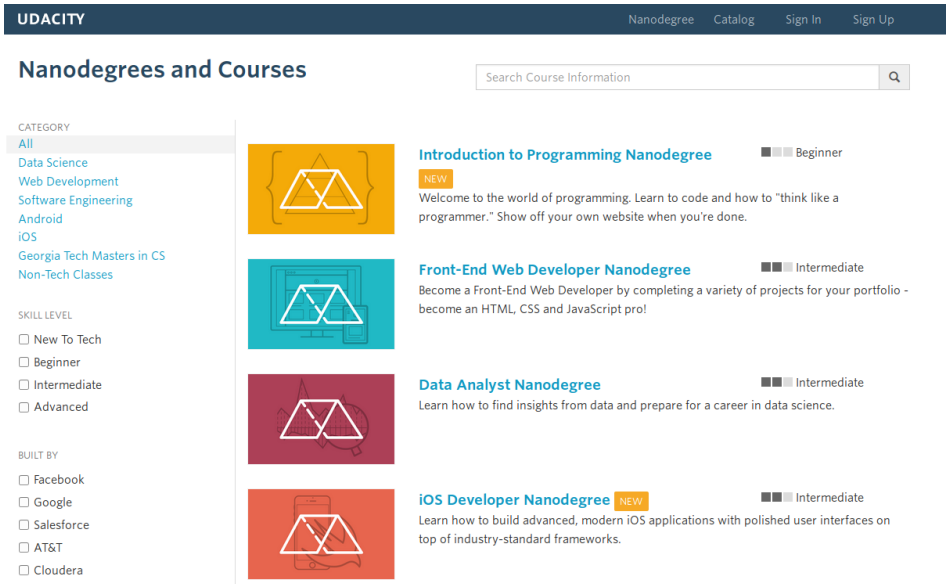
coursera: https://www.coursera.org



- created in 2012, 111 partners (mostly academics)
- more than 1000 courses and 11 specialization programs (that gather courses on a common topic); 85 courses in the topic "Statistics and Data analysis"
- courses are given in 29 languages
- uses its own platform program (not open-source but very well made, simple, easy to navigate and integrating many tools, such as videos, quiz-in-video, quizzes, pages to upload essays...)
- can provide verified certificates of validation (this service is not free)

Some MOOC platforms non exhaustive list, restricted to platforms I have already tested

Udacity: https://www.udacity.com

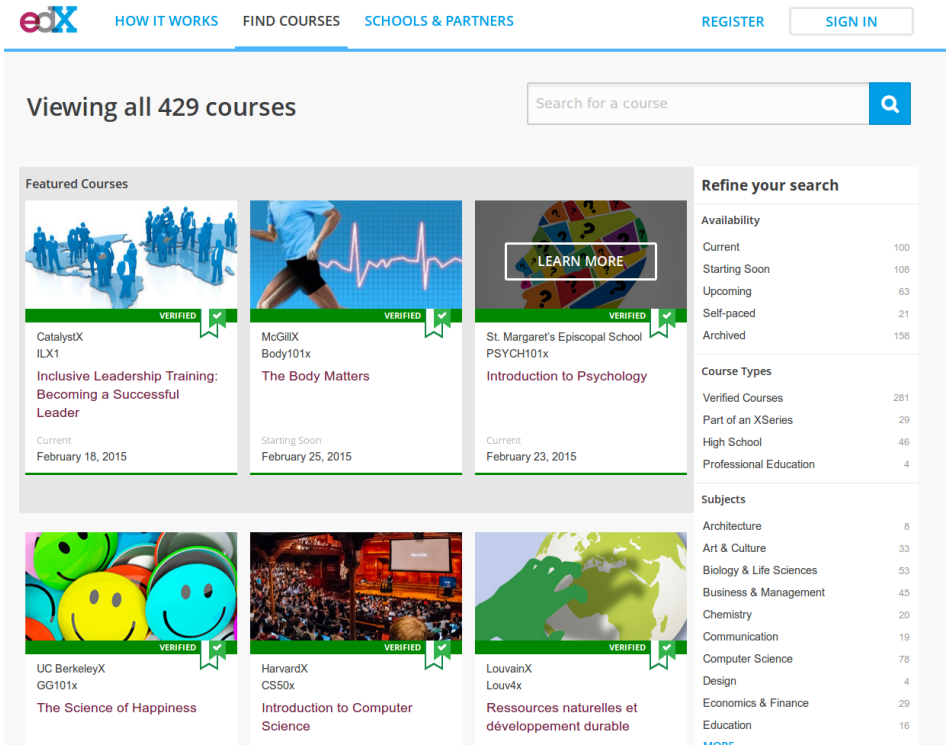


- created in 2012, 18 partners (mostly firms, such as Google, Nvidia, facebook...)
- ~ 80 courses, all oriented toward IT and 5 “nanodegrees”; 13 in the field of “Data Science” (some of them are DB courses)
- courses are given in English
- uses its own platform (a bit less easy to navigate between the different parts of the course; comprises videos with quizzes inside the video, quizzes and a forum; the non-free version of the course also gives access to reviewed projects)
- can provide verified certificates of validation (this service is not free)

Some MOOC platforms

non exhaustive list, restricted to platforms I have already tested

edX: https://www.edx.org



- created in 2012, 79 partners (mostly academics but including, *e.g.*, the Linux Foundation, Microsoft)
- more than 500 courses and 32 Xseries; 57 courses in the field “Data Analysis and Statistics”
- mostly in English but some courses are in 6 other languages
- platform based on the open-source program “Open edX”, partially developed by Google and also used by the French platform FUN (less flexible and easy to navigate, integrates videos, and quizzes but (as far as I know) no quiz-in-video and no page to upload essays...)

Some MOOC platforms non exhaustive list, restricted to platforms I have already tested

FUN (French platform):
http://www.france-universite-numerique.fr

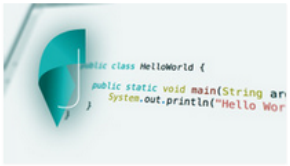
- created in 2013, 47 partners
- ∼ 131 courses which are not organized by topic anymore...
- courses are given in French or in English (few)
- platform based on the open-source program "Open edX" which has been customized (*e.g.*, uses DailyMotion instead of YouTube for posting videos)

Navigating inside a MOOC

coursera Courses Nathalie Vialaneix

EPFL ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

Initiation à la programmation (en Java)
by Jean-Cédric Chappelier, Jamila Sam



COURS

- Annonces
- Vidéos
- Compléments de cours
- Références
- Errata

PRATIQUE

- Installation
- Quiz
- Tutoriels
- Exercices conseillés

Annonces

Certificats

Bonjour à tous,

L'heure du dernier rendu tardif («hard deadline») est donc maintenant dépassée.
Nous avons préparé les certificats pour tous ceux qui ont obtenus
au moins 75% des points et sommes sur le point de les envoyer
(la demande est partie chez Coursera et devrait arriver dans la semaine).

Les chiffres définitifs sont les suivants :
19'377 ont été inscrits à ce cours, dont 14'999 actifs (ça ne s'invente pas !).
les vidéos ont été regardées 198,020 fois au total, par 10,851 d'entre
vous ; 3'526 ont fait au moins un quiz et vous avez été 2'021 à rendre au moins
un devoir noté. Sur ces 2'021, 745 ont obtenu un certificat (37% de réussite)
dont 459 (23%) « avec distinction » (pour avoir obtenu plus de 90% des points).

Un grand bravo à tous, participants occasionnels ou fidèles ! Nous vous souhaitons
bonne continuation, dans vos apprentissages.
Et pour ceux qui souhaiteraient refaire ce cours-ci, rendez-vous l'année prochaine
aux alentours du 20 septembre.

Très cordialement,
--
Jamila et Jean-Cédric

Prochaines échéances

Recent Discussions

Cours d'initiation à la programmation évènementielle avec Netbeans
Last post by khalil (a month ago)

Notes de cours
Last post by Jean-Cédric Chappelier INSTRUCTOR (a month ago)

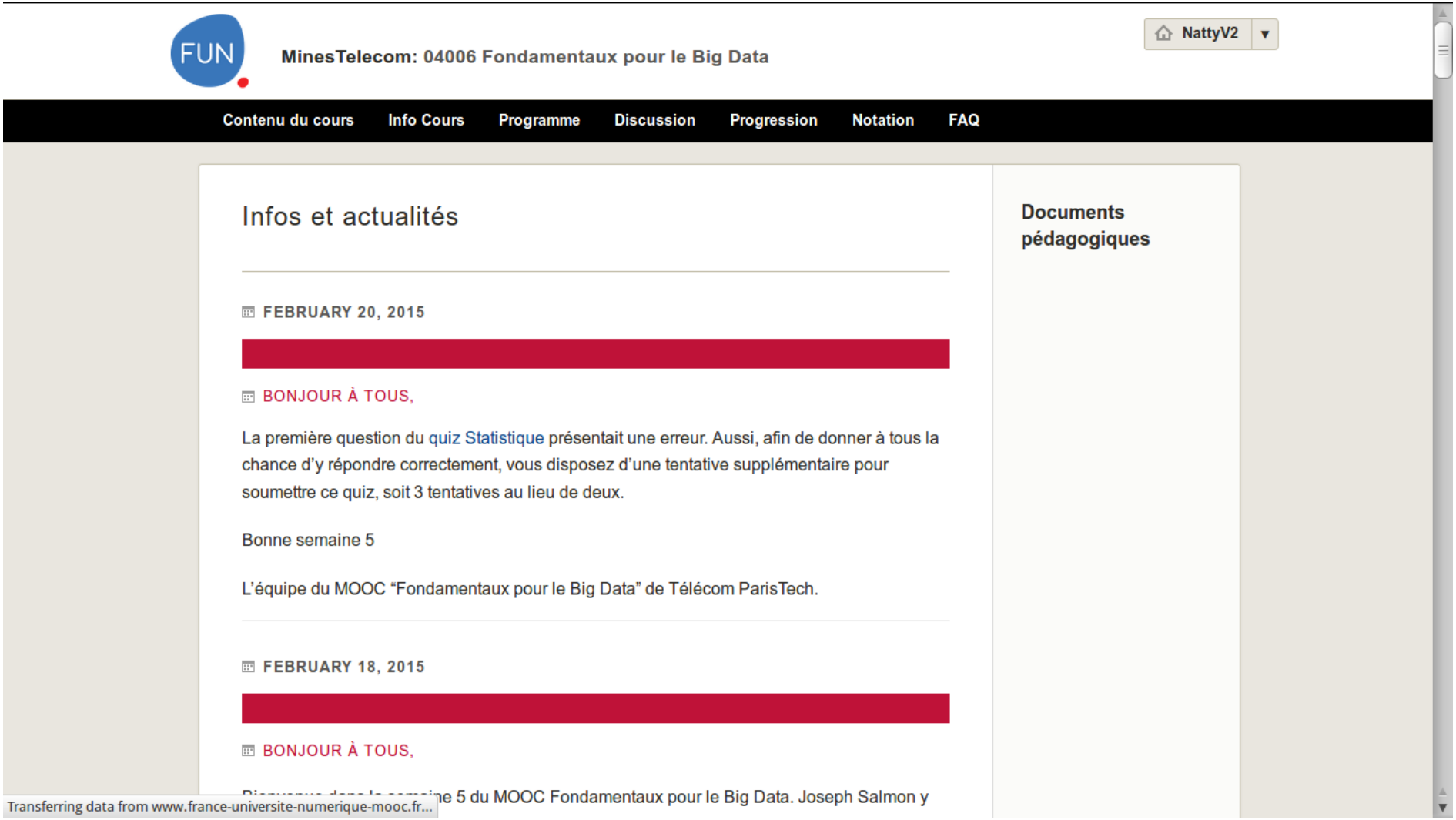
certifcat format pdf par e-mail ?
Last post by MEKEZE KWATCHO Patrick (2 months ago)

Slides manquants semaine6 et semaine7
Last post by Gaspard Zoss STAFF (3 months ago)

Corrirgés des devoirs
Last post by Gaspard Zoss STAFF (3 months ago)

Browse all discussions »

Navigating inside a MOOC



Examples of course outlines

"Data Analysis" (J. Leek, John Hopkins, coursera)

pre-requisites: apparently, none...

- week 1 overview on data analysis and R
- week 2 data management and organizing a data analysis
- week 3 graphics and PCA
- week 4 statistical inference and linear regression
- week 5 ANOVA, GLM, variable selection
- week 6 statistical learning, cross validation, regression trees
- week 7 smoothing, bootstrap, bagging
- week 8 multiple test correction, validation by simulation, summary

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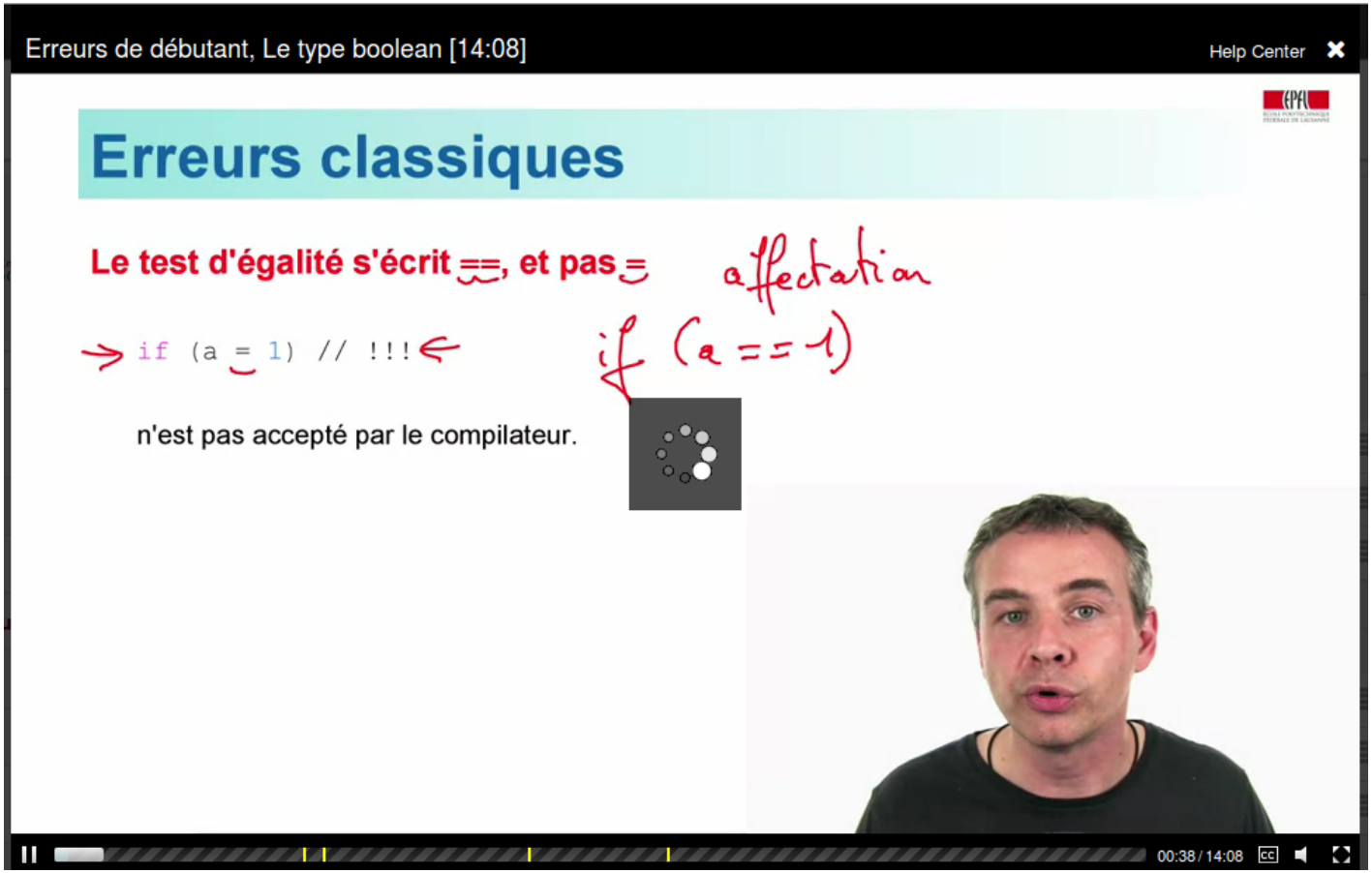
plus: quizzes every week and 2 projects with real life and complex data on weeks 3 and 6 (2 weeks are given to give the project back) and evaluate the projects of 3 other students at least ⇒ Be honnest, this cannot be done if you have no pre-requisites!!

Material

It is usually composed of:

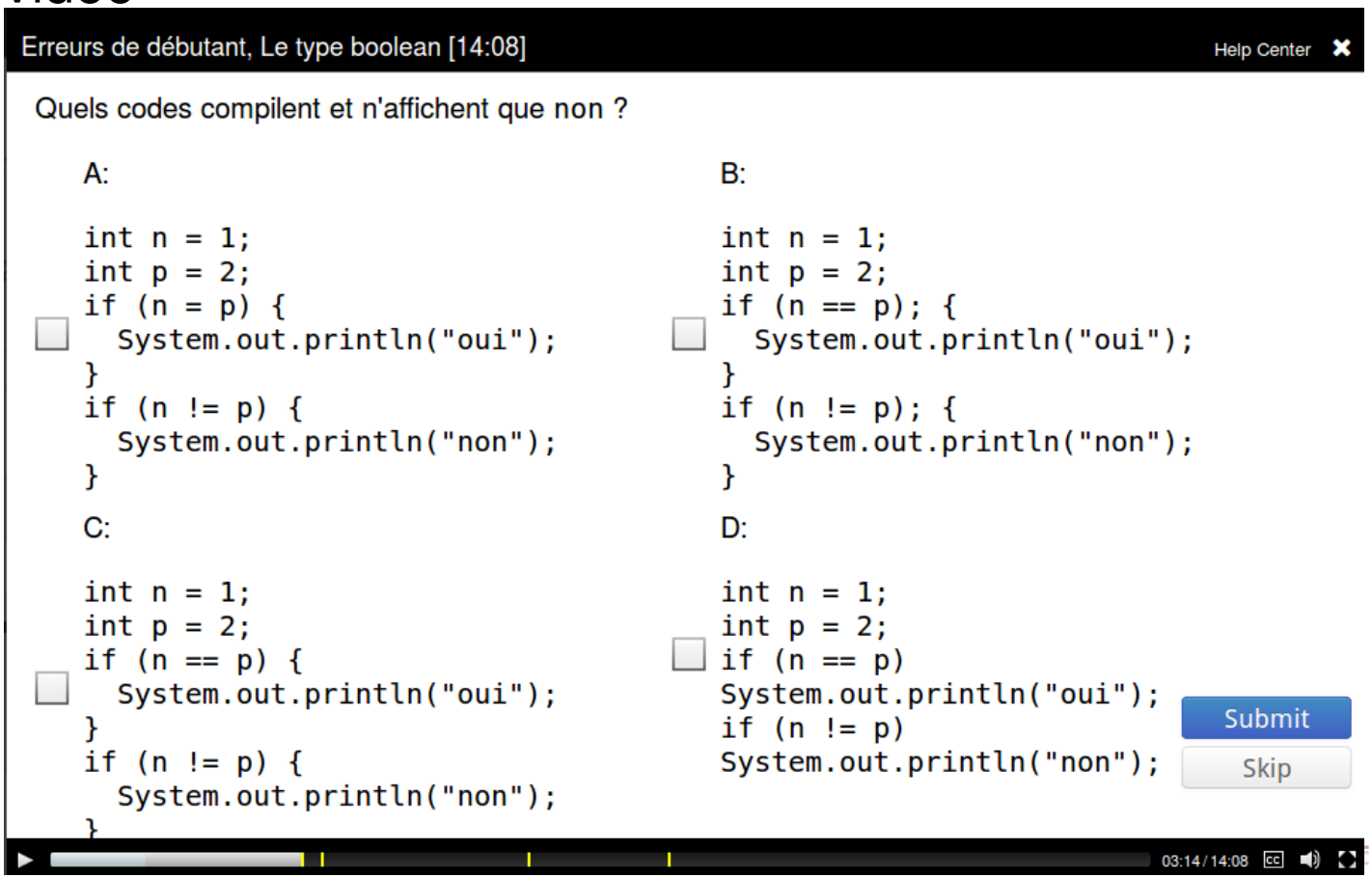
- videos (short ~ 10 minutes, ~ 5/10 for each week) with the teacher, slides, animation on slides, movie...



Material

It is usually composed of:

- videos (short ~ 10 minutes, ~ 5/10 for each week) Sometimes, videos are interrupted by very basic quizzes very helpful to check that you have well understood the main idea and keep you focused on the video



Material

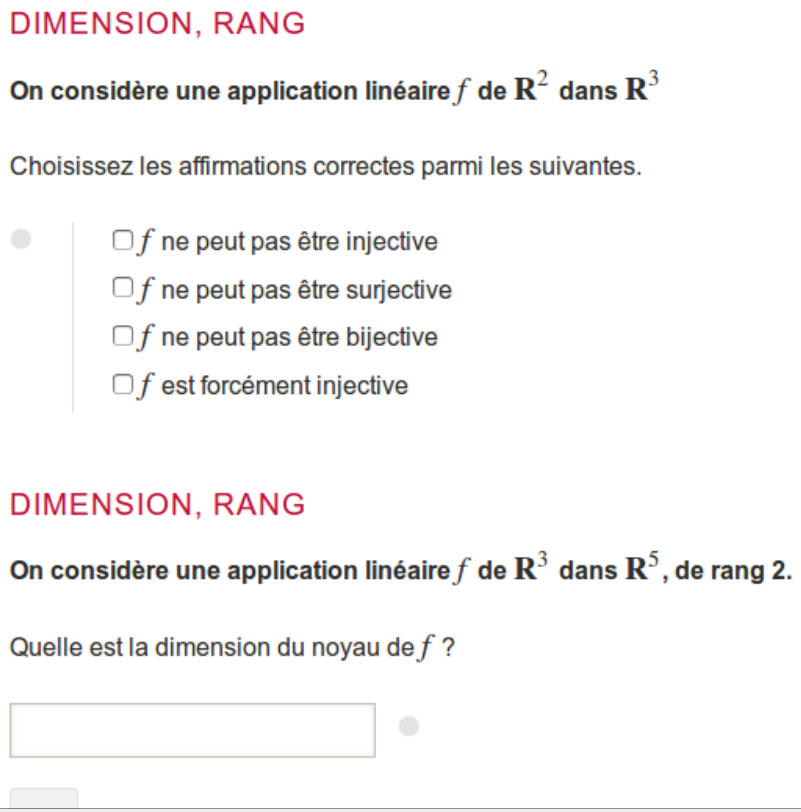
It is usually composed of:

- videos (short $\sim$ 10 minutes, $\sim 5/10$ for each week) Sometimes, videos are interrupted by very basic quizzes Usually, videos can be downloaded (MP4 format) as well as the slides (HTML or PDF)

Material

It is usually composed of:

- videos (short $\sim$ 10 minutes, $\sim$ 5/10 for each week) Sometimes, videos are interrupted by very basic quizzes
- quizzes: generally every week, they are short and can be part of the evaluation. They are also more difficult than the basic quizzes included in the videos



DIMENSION, RANG

On considère une application linéaire f de $\mathbf{R}^2$ dans $\mathbf{R}^3$

Choisissez les affirmations correctes parmi les suivantes.

- ☐ f ne peut pas être injective
- ☐ f ne peut pas être surjective
- ☐ f ne peut pas être bijective
- ☐ f est forcément injective

DIMENSION, RANG

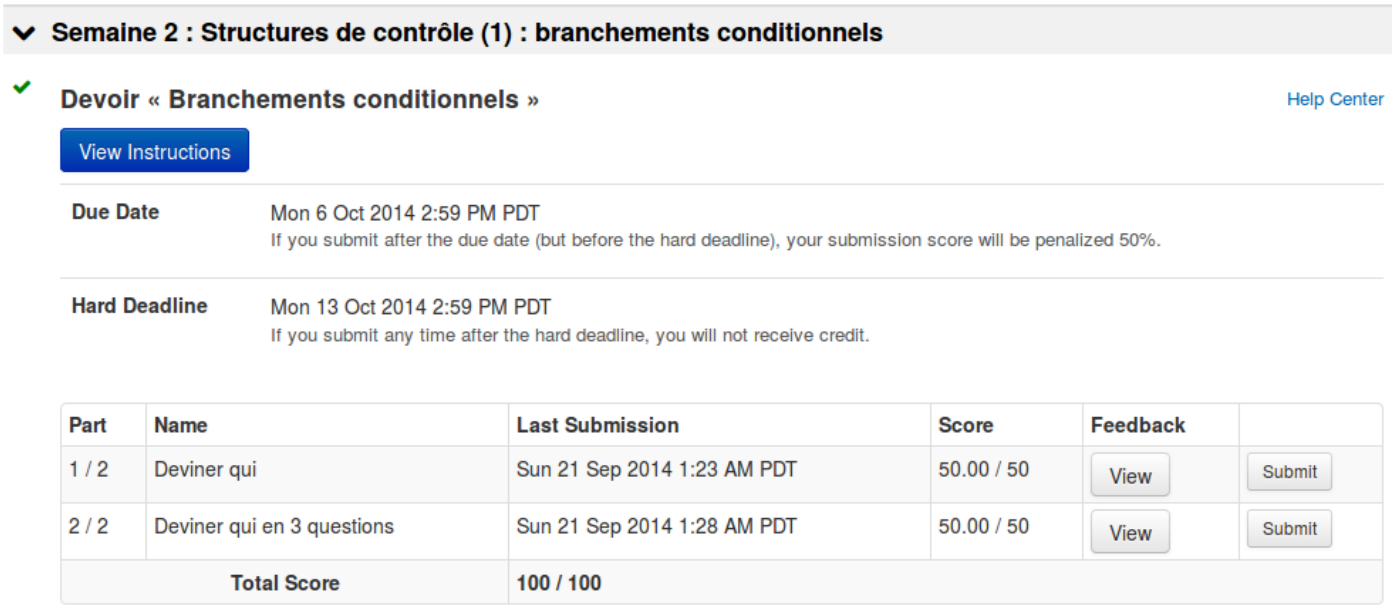
On considère une application linéaire f de $\mathbf{R}^3$ dans $\mathbf{R}^5$, de rang 2.

Quelle est la dimension du noyau de f ?

Material

It is usually composed of:

- videos (short ~ 10 minutes, ~ 5/10 for each week) Sometimes, videos are interrupted by very basic quizzes
- quizzes: generally every week
- sometimes one or several exercises are given that are most frequently part of the evaluation. They are marked by i) the platform itself (if it can be tested, as for programs or a cleaned data sets) or ii) by several other students (for reports)



Semaine 2 : Structures de contrôle (1) : branchements conditionnels

Devoir « Branchements conditionnels » Help Center

View Instructions

Due Date	Mon 6 Oct 2014 2:59 PM PDT If you submit after the due date (but before the hard deadline), your submission score will be penalized 50%.
Hard Deadline	Mon 13 Oct 2014 2:59 PM PDT If you submit any time after the hard deadline, you will not receive credit.

Part	Name	Last Submission	Score	Feedback	
1 / 2	Deviner qui	Sun 21 Sep 2014 1:23 AM PDT	50.00 / 50	View	Submit
2 / 2	Deviner qui en 3 questions	Sun 21 Sep 2014 1:28 AM PDT	50.00 / 50	View	Submit
	Total Score	**100 / 100**			

Material

It is usually composed of:

- videos (short $\sim$ 10 minutes, $\sim 5/10$ for each week) Sometimes, videos are interrupted by very basic quizzes
- quizzes: generally every week
- sometimes one or several exercises
- additional material (for further concepts), a discussion forum (that I haven't been using much), a wiki (students' material), live meeting, subtitling teams for the videos...

Evaluation

Most MOOCs deliver certificates of validation.

- basic version: a given amount of quizzes have been answered properly, sometimes several attempts are allowed (sometimes with a penalty at each new attempt); sometimes, the final mark is a combination of the results to quizzes and the results to projects (partially evaluated by your pairs)

Evaluation

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- basic version: a given amount of quizzes have been answered properly, sometimes several attempts are allowed (sometimes with a penalty at each new attempt); sometimes, the final mark is a combination of the results to quizzes and the results to projects (partially evaluated by your pairs)
- verified certificates: part of the MOOC business model is based on these certificates that are charged; they are sometimes corrected by an instructor (or an assistant)

Some remarks

Why do I finish a MOOC?

- the program, pre-requisites, requested effort, ... must be designed carefully
- videos must be short (can be watched at spare time)
- videos are preferably interactive (can be watched while doing something else)
- quizzes must force me to come back to the course (preferably to PDF version of the slides)
- frequent assignments with a realistic objective
- synchronization and deadlines are mandatory

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I am not that lazy: the ratio of registered people who have obtained a certificate is about 2/3%...

Thank you for your attention...

... questions?

A few references

- Villa-Vialaneix, N. (2013) J'ai testé pour vous... un MOOC. *Statistique et Enseignement*, **4**(2), 3-17.
- Special issue of the journal *Statistique et Enseignement*, **La statistique dans le secondaire et retour sur les MOOCs** (2014) vol. **5**(1).
- Bar-Hen, A., Villa-Vialaneix, N. & Javaux, H. (2015) Analyse statistique des profils et de l'activité des participants d'un MOOC. *Revue Internationale des Technologies en Pédagogie Universitaire*. *Forthcoming*.
- Villa-Vialaneix, N. (2015) Note de lecture sur le MOOC "Analyse des données multidimensionnelles de François Husson, Jérôme Pagès & Magalie Houée-Bigot". *preprint*