

*WELCOME TO ECOLE
POLYTECHNIQUE!
MSc&T Data Science for Business*

*Joint Degree X- HEC Year
Year 1*



Team

Polytechnique:

Julie Josse: Faculty - pedagogical director

Anne Chretien: Head of the Graduate Degree Program

Maelle Couvin: Coordinator of the Master Data Science for Business

QUESTIONS: MAELLE.COUVIN@POLYTECHNIQUE.EDU

HEC:

Vincent Fraitot: Scientific Director of the Master DSB

Marion Guiral: Program Manager of the Master DSB

PROGRAM

44 students:

12 HEC

24 International

8 X

TWO WORLD LEADING ACADEMIC INSTITUTIONS



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- YEAR 1: FOCUS ON LEARNING MACHINE LEARNING METHODS (THEORY+APPLICATION) AND INTERNSHIP
- YEAR 2: FOCUS ON CASE STUDIES (LEARNING EXPEDITIONS, DATA CHALLENGES, HACKATHONS) + RESEARCH PAPER

PROGRAM OBJECTIVES



TRAIN DUAL PROFILE MANAGER AND DATA SCIENTISTS TO BECOME EITHER

- THE ENTREPRENEURS WHO WILL CREATE THE FUTURE SUCCESSFUL AND IMPACTFUL STARTUPS
- THE INTRAPRENEURS WHO WILL DISRUPT BUSINESS MODELS IN EXISTING COMPANIES
- THE DATA MANAGERS WHO WILL HELP COMPANIES TO MANAGE INNOVATION
- DOUBLE SKILLS NEEDED NO MATTER THE REGION, THE SECTOR, THE COMPANY SIZE, IN OPERATION AND CONSULTING

REFRESHERS COURSES

Monday, September 9th		Tuesday, September 10th		Wednesday, September 11th		Thursday, September 12th		Friday, September 13th	
9am-12pm	2pm-5pm	9am-10:30am	2pm-5pm	9am-12pm	1:30pm-4:30pm	9am-12pm	1:30pm-4:30pm	9am-12pm	2pm-5pm
MAP532-lecture	MAP532	eXplore your Future Presentation	MAP532-lecture	MAP530-lecture	MAP530	MAP530-lecture	MAP530	MAP532	MAP532-lecture
F.NABET	F.NABET	F.NABET	F.NABET	T.REBAFKA	T.REBAFKA	T.REBAFKA	T.REBAFKA	F.NABET	F.NABET
Amphi Becquerel	PC16-PC17	Amphi Faurre	Amphi Cauchy	Amphi Cauchy	PC16-PC17	Amphi Carnot	PC16-PC17	PC09-PC10	Amphi Faurre
Monday, September 16th		Tuesday, September 17th		Wednesday, September 18th		Thursday, September 19th		Friday, September 20th	
9am-12pm	2pm-5pm	9am-12pm	2pm-4:30pm	9am-12pm	1:30pm-4:30pm	2:30-3:30pm	3:30pm-5:30pm	9am-12pm	2pm-5pm
MAP530-lecture	MAP532	MAP530	MAP547	MAP530-lecture	MAP530	Language Presentation	The dangers of alcohol	MAP532-lecture	MAP532
T.REBAFKA	F.NABET	T.REBAFKA	DSB Seminar	T.REBAFKA	T.REBAFKA			F.NABET	F.NABET
Amphi Faurre	PC16-PC17	PC14-PC15	Amphi Cauchy	Amphi Becquerel	PC16-PC17	Amphi Faurre	Amphi Arago	Amphi Carnot	PC16-PC17

SE	MOIS	JD	LUNDI	JOU	MARDI	JOU	MERCREDI	JOU	JEUDI	JOU	VENDREDI					
ME	UR	UR		R		R		R		R						
36	Lun 2 Jan 10 8 Sept	12 21		Ma 3		Ma 4	Amphi admin + directeur	Je 5	Amphi institutionnel	Ve 6	Soutenance de stage					
37	Lun 9 Jan 13 8 Sept	12 21	MAPS32 Cours 9h-12h MAPS32 PC 14h-17h	Ma 10	Amphi Anne MAPS32 Cours 14h-17h	Ma 11	MAPS30 Cours 9h-12h MAPS30 PC 13h30-16h30	Je 12	MAPS30 Cours 9h-12h MAPS30 PC 13h30-16h30	Ve 13	MAPS32 PC 9h-12h MAPS32 Cours 14h-17h					
38	Lun 16 Jan 20 15 Sept	12 21	MAPS30 Cours 9h-12h MAPS32 PC 14h-17h	Ma 17	MAPS30 PC 9h-12h MAPS47 - Seminaire	Ma 18	MAPS30 Cours 9h-12h MAPS30 PC 13h30-16h30	Je 19	Sport & Langues		Ve 20	MAPS32 Cours 9h-12h MAPS32 PC 14h-17h				
39	Lun 23 Jan 27 15 Sept	12 21	Strat pour X2017 PC&A MAPS30 PYTHON (devoirs sans collab)		Ma 24	HFC MAPS31 - Stage - Cours (Séminaire + PC)	Ma 25	MAPS30 PYTHON		Je 26	MAPS30 PYTHON					
40	Lun 30 Jan 30 15 Sept	12 21	MAPS34 ML - Cours - Lauréat	Ma 1	HFC MAPS47 - Seminaire	Ma 2	MAPS31 Stats - Cours - Lauréat	Je 3	Sport & Langues		Ve 4	MAPS31 Stats - Cours - Lauréat				
41	Lun 7 Jan 11 11 Oct	12 21	X-FORUM		Ma 8	X-FORUM		Ma 9	MAPS35 Regression - Cours - Lauréat	Je 10	Sport & Langues					
42	Lun 14 Jan 18 11 Oct	12 21	MAPS34 ML - Cours - Lauréat	Ma 15	HFC MAPS47 - Seminaire	Ma 16	MAPS35 Regression - Cours - Lauréat	Je 17	MAPS35 Regression - Cours - Lauréat	Je 18	Coupe de TX Nuit du Day	Ve 19	MAPS31 Stats - Cours - Lauréat			
43	Lun 21 Jan 25 11 Oct	12 21	MAPS34 ML - Cours - Lauréat	Ma 22	HFC	Ma 23	MAPS30 PYTHON		Je 24	Sport & Langues		Ve 25	MAPS30 PYTHON			
44	Lun 28 Jan 28 8 Nov	12 21	VACANCES DE LA TOUSSAINT		Ma 29	VACANCES DE LA TOUSSAINT		Ma 30	VACANCES DE LA TOUSSAINT		Je 31	VACANCES DE LA TOUSSAINT				
45	Lun 4 Jan 15 8 Nov	12 21	MAPS34 ML - Cours - Lauréat	Ma 5	HFC MAPS47 - Seminaire	Ma 6	Cours MIE		Je 7	Sport & Langues		Ve 8	MAPS35 Regression - Cours - Lauréat			
46	Lun 11 Jan 18 15 Nov	12 21	Deep Learning 2A FERIE		Ma 12	HFC	Ma 13	MAPS31 Stats - Cours - Lauréat	Je 14	Sport & Langues		Ve 15	MAPS35 Regression - Cours - Lauréat			
47	Lun 18 Jan 22 15 Nov	12 21	MAPS34 ML - Cours - Lauréat	Ma 19	HFC MAPS47 - Seminaire	Ma 20	MAPS31 Stats - Cours - Lauréat	Je 21	MAPS31 Stats - PC - Journé/TWh	Je 22	Sport & Langues		Ve 23	MAPS35 Regression - Cours - Lauréat		
48	Lun 25 Jan 29 15 Nov	12 21	MAPS30 PYTHON		Ma 26	HFC	Ma 27	MAPS35 Regression - Cours - Lauréat	Je 28	MAPS35 Regression - PC - Barthe/Mazzari/ Mayer	Je 29	Sport & Langues				
49	Lun 2 Jan 6 9 Dec	12 21	MAPS34 ML - Cours - Lauréat	Ma 3	HFC	Ma 4	Célébration de la Sainte Barbe		Je 5	Sport & Langues		Ve 6	MAPS43 DB - Cours - Colazzo			
50	Lun 9 Jan 13 9 Dec	12 21	MAPS34 ML - Cours - Lauréat	Ma 10	HFC	Ma 11	MAPS31 Stats - Cours - Lauréat	Je 12	MAPS31 Stats - PC - Mazzari/Journé/TWh	Je 13	Sport & Langues		Ve 14	MAPS43 DB - Cours - Colazzo		
51	Lun 16 Jan 20 16 Dec	12 21	MAPS30 PYTHON		Ma 17	HFC EXAMEN	Ma 18	MAPS34 ML - Cours - Lauréat	Je 19	MAPS34 ML - PC - Lauréat	Je 20	Examén MAPS31 1st				
52	Lun 23 Jan 27 16 Dec	12 21	Fair Learning 2A		Ma 24	Fair Learning 2A		Ma 25	Fair Learning 2A		Je 26	Fair Learning 2A				
53	Lun 30 Jan 30 16 Dec	12 21	NOËL		Ma 31	VACANCES DE NOËL		Ma 2	VACANCES DE NOËL		Je 3	VACANCES DE NOËL				
1	Lun 6 Jan 10 2022	12 21	JOUR DE L'AN		Ma 31	VACANCES DE NOËL		Ma 1	VACANCES DE NOËL		Je 2	VACANCES DE NOËL				
2	Lun 13 Jan 13 17 Jan	12 21	MAPS45 OptimDL - Cours - Charlier/Scornet	Ma 7	HFC MAPS47 - Seminaire	Ma 8	MAPS45 OptimDL - Cours - Charlier/Scornet	Je 9	MAPS45 OptimDL - Cours - Charlier/Scornet	Je 10	Sport & Langues		Ve 11	MAPS43 DB - Cours - Colazzo		
3	Lun 20 Jan 20 17 Jan	12 21	MAPS45 OptimDL - Cours - Charlier/Scornet	Ma 14	HFC	Ma 15	MAPS41 ML2 - Cours - Garcu	Je 16	MAPS41 ML2 - PC - Garcu/Herbreuc	Je 17	Sport & Langues		Ve 18	MAPS45 OptimDL - Cours - Charlier/Scornet		
4	Lun 27 Jan 27 17 Jan	12 21	JSP		Ma 21	HFC MAPS47 - Seminaire	Ma 22	MAPS41 ML2 - Cours - Garcu	Je 23	MAPS41 ML2 - PC - Garcu/Herbreuc	Je 24	MAPS45 OptimDL - Cours - Charlier/Scornet	Ve 25	MAPS45 OptimDL - Cours - Charlier/Scornet		
5	Lun 3 Jan 31 21 Jan	12 21	MAPS45 OptimDL - Cours - Charlier/Scornet	Ma 29	HFC	Cours optionnel: Statist/ Calcul/1 Cours Camp	Ma 30	MAPS41 ML2 - Cours - Garcu	Je 31	MAPS41 ML2 - PC - Garcu/Herbreuc	Je 31	Sport & Langues		Ve 31	MAPS45 OptimDL - Cours - Charlier/Scornet	
6	Lun 10 Jan 10 21 Jan	12 21	MAPS44	Ma 4	HFC	MAPS40 EngenAI 14h-17h	Ma 5	MAPS41 ML2 - Cours - Garcu	Je 6	MAPS41 ML2 - PC - Garcu/Herbreuc	Je 7	Sport & Langues		Ve 8	MAPS45 OptimDL - Cours - Charlier/Scornet	
7	Lun 17 Jan 17 14 Feb	12 21	MAPS44	Ma 11	HFC MAPS47 - Seminaire	Ma 12	MAPS41 ML2 - Cours - Garcu	Je 13	MAPS41 ML2 - PC - Garcu/Herbreuc	Je 14	Sport & Langues		Ve 15	MAPS45 OptimDL - Cours - Charlier/Scornet		
8	Lun 24 Jan 24 21 Feb	12 21	VACANCES DRIVER		Ma 18	VACANCES DRIVER		Ma 19	VACANCES DRIVER		Je 20	VACANCES DRIVER		Ve 21	VACANCES DRIVER	

Only valid today
5 of September

Agenda on
Synapse

YEAR 1

PERIOD 1

MAP531 Statistics with R (4ECTS)

MAP534 Machine Learning 1 (4ECTS)

MAP535 Regression (4ECTS)

MAP536 Python for Data Science (3ECTS)

PERIOD 1&2

MAP543 Database Management (4ECTS)

MAP547 Data Science for Business Seminars (3ECTS)

PERIOD 2

2 Mandatory Courses

MAP541 Machine Learning 2 (4ECTS)

MAP545 Optimization / Deep Learning (4ECTS)

1 Elective Course to be chosen among (4ECTS)

MAP540 Capgemini Data Camp

MAP546 Statistical Models for Health

MAP544 Causal Inference / Reinforcement Learning



YEAR 1

First Period

MAP531 - Statistics

Pierre Latouche

Agenda: Inference, Max Likelihood, Tests

MAP535 - Regression

Karim Lounici

MAP534 - Machine Learning

Sylvain Lecorff

Agenda: Non supervised: PCA, clustering, mixture models Supervised: logistic regression, LDA

3 hours of lecture/ 3 hours of Lab

MAP536 - Python for Data Science

Scikitlearn team



Tuesday afternoon

MAP534 - Data Science for Business Seminars

Magali Payan

Dataiku, Nvidia, Criteo, Natixis (Partner of the master), etc.

Time to work and for interviews for internship

YEAR 1 INTERNSHIPS



Capgemini

Atos



amazon



Owkin

EXAMPLES OF SUBJECTS:

- Ubisoft: fraud detection
- Dreem: testing new intervention (number of pink noise, when?) to improve sleep

AIRFRANCE

Information:

- Maelle Couvin: email early/mid october
- Starts looking for an internship end of november

6 of september - public defenses

YEAR 1

Second Period

P1 & P2 MAP543 - Database Management

Dario Colazzo

MAP531 - Deep Learning/Optimization
Erwan Scornet/Aymeric Dieuleveut

MAP541 - Machine Learning 2
Stephane Canu

Boosting/ STSNE/ Interpretable ML/ SVM,..

1 Elective Course to be chosen among

MAP540 Capgemini DataCamp Project

Real case study from data manipulation,
exploration to analysis with statistical models,
synthesis and communication - NLP

Example: Detect fraud in public transport via tweet/
mobile phone satisfaction with textmining

MAP546 - Marc Lavielle Statistical Models for Health

MAP544 - Julie Josse Causal Inference

Information: mail by julie josse early november



Information/ Code of conduct



- **Classes are mandatory. 3 unjustified absences = Grade C max. at the exam**

A: ≥ 16

B: ≥ 13 and < 16

C: ≥ 10 and < 13

D: ≥ 7 and < 10

E: < 7

F: 0

- **Compensation rule**
- **Respect, behave well, be considerate in speech and actions**
- **Benevolent environment for all, french-speaking and non french speaking**
- **Contact us if there is any issues**

ACADEMIC YEAR DATES



Exams:

- December 16th-20th (Period 1)
- March 16th-20th (Period 2)



Beginning of the internship:

March 25th



Breaks:

- October 27th-November 4th
- December 22nd-January 6th
- February 23rd-March 3rd

TRANSVERSE COURSES

- + Sport
- + Languages
- + Humanities and French Culture

IMPORTANT MEETINGS

- + Sport
- + Languages
- + Humanities and French Culture



- **September 10th: Kick-off Seminar, eXplore your future, 9:00am Amphi Faurre**
- **September 19th: Presentation of the language courses, 2:30pm Amphi Faurre**
- **September 30th: Presentation of the sport courses, 1:00pm, Amphi Gay Lussac**
- **Meeting with the second year (ask Maelle Couvin)**

MAIN EVENTS AT L'X



- **October 7th-8th: X-Forum. Meet companies and build your professional network**
- **October 17th: Coupe de l'X. Sport tournament**
- **January 18th→20th†: JSP. Ski trip**
- **March 15th: TSGED. Sport tournament**
- **More to come!**

SOME BASIC RULES AND TIPS



- **Check your Zimbra inbox everyday.**
- **Schedules might change, check SynapseS regularly.**
- **The academic team is here for you! Do not hesitate to come to them for any problem.**
- **Study regulation has to be pick up at Maëlle's office**

Questions?

