** 3rd Year Track DDEFi
Data, Decisions in Economics and Finance
(Données, Décisions Economiques et Financières in French) **

This page is also available in the following languages

- French: mostly dedicated to Centrale Méditerranée degree-seeking students but some parts might also be useful to international exchange students.



Graduate Program outlines

The graduate program is designed to offer a wide range of courses into several fields: Mathematical Finance, Insurance or Quantitative Management and Data Science related to the previours fields.

Technology and economy are more and more complex. Mathematics and their applications are at the heart of the decision tools needed in this world: they help to model, evaluate and control risks associated to industrial processes, economical phenomena or financial products. The knowledge of mathematical tools associated to a deep understanding of these phenomena is largely appreciated in many areas.

Depending on the student's status, the student can also attend a Master program in parallel with the track DDEFi :

- Master Finance Faculté d'Economie et Gestion (FEG) and Aix-Marseille School of Economics (AMSE), track https://feg.univ-amu.fr/fr/formation/masters/m2-finance-parcours-modelisation-financiere#section-7347 (information contact at Centrale Méditerranée: Renaud Bourlès): only 2nd year course units.
- Master in Applied Mathematics and Statistics, track Data Science (information contact at Centrale Méditerranée: Christophe Pouet): only 2nd year course units,
- Master in Mathematics and Applications, track Analysis of Deterministic and Probabilistic Models (information contact at Centrale Méditerranée: Marie Billaud-Friess): only 2nd year course units.

Goals

Prepare students to become highly skilled engineers able to recognize and model complex problems in order to develop adequate strategical decisions.

The main topics are finance, insurance, probability, statistics, scientific computing, optimization, mathematical modelling for risks in economy and finance, actuarial science, marketing, quantitative

management.

Important information for exchange students

** EXCHANGE STUDENTS: This section contains VERY IMPORTANT information to help you prepare your mobility. **

Number of accepted students

The 3rd Year scientific tracks such as DDEFi have a limited number of accepted students. Priority is given to Centrale Méditerranée engineering degree students and Aix-Marseille University students. Nevertheless, the track DDEFi has always been able to accept exchange students (usually 3 or 4) and we will be very pleased to have you as an exchange student for one or two semesters depending on the requirements at your home university.

Here is a list of some partner universities that have sent students to the DDEFi track for an academic exchange:

- Brazil
  - USP - Poli
  - UFRJ
- Germany
  - Karlsruher Institute für Technologie
- Italy
  - Politecnico di Milano
  - Università di Bologna
- Morocco
  - Ecole Centrale Casablanca
- Spain
  - Universidad Politécnica de Madrid
- Tunisia
  - Ecole Nationale Supérieure d'Ingénieurs de Tunis

Academic calendar

A new organization will be in place from academic year 2024-2025. Please carefully check the latest information here and inquire of your local coordinator if it fits your mobility window.

The general organization of the year is as follows:

- ** Fall-Winter Semester (called Semester 9 abbreviated as S9): from early September until late March/early April. ** All course units are offered during this semester. See below the programme structure to learn more about available courses.
- ** Spring-Summer Semester (called Semester 10 abbreviated as S10): from early April up to late September. ** The internship period (work or research placement) can be as long as 6 months.

Although each course unit belongs to a specific period, some course units can be taught over two or

three periods (e.g. thhe course unit Actuarial Science). Therefore it is very important for you to know your exact mobility window available at your home institution and to contact Centrale Méditerranée International Mobility Office or Prof. Christophe Pouet (christophe.pouet[A-T]centrale-med.fr with [A-T] replaced by @) for the track DDEFi if you need some advice.

If you can stay at Centrale Méditerranée from early September to early April, you will be able to validate 17 ECTS credits (including a 5 ECTS team project) with course units offered in the track DDEFi but there are some ways to improve the total as some course units can be counted as Master course units. Do not hesitate to contact Centrale Méditerranée International Mobility Office or Prof. Christophe Pouet to discuss your learning agreement in regard to the requirements of your home institution.

You can validate more ECTS credits if your home institution accepts to recognize other course units offered during Semester 9 such as language courses, management courses, courses offered in one of the professional tracks.

Language of instruction

If you intend to come for one year at Centrale Méditerranée, please note that depending on the number of credits taken, your proficiency in French must be at least at intermediate level (level B1 or higher recommended).

Please note that the instruction language is English for several course units in the track DDEFi.

Number of credits for a full exchange year

If you intend to come for one year, the Spring-Summer semester will certainly include a research or work placement (equivalent to a Master Thesis, 30 ECTS). Due to the academic calendar, vou cannot attend courses during the Spring-Summer semester.

Please check the information below about credits.

Availability of courses

- Courses may be cancelled with very short notice (e.g. if not enough students sign up for the course), although that should happen very seldom in the 3rd year track DDEFi.
- Courses may be overbooked (too many students sign up) preventing you from taking the course. Priority is given to degree-seeking students.

Structure of the program

The track DDEFi allows a student to validate 12 ECTS for courses and 5 ECTS for a team project. The number of ECTS credits thanks to DDEFi course units depends on your mobility period.

Please read CAREFULLY what is written in the table below and do not hesitate to contact Centrale Méditerranée International Mobility Office or Prof. Christophe Pouet (christophe.pouet[AT]centrale-

med.fr with [AT] replaced by @) for the track DDEFi if you need some advice.

Academic Team

Instructors are from Centrale Méditerranée, from other HEIs (such as Aix-Marseile Université or Kedge BS) or highly skilled practitionners from renowned companies including several Centrale Méditerranée alumni. Full list of instructors available in French here

List of course units

** Warning! This programme is offered since academic year 2024-2025. **

The DDEFi track offers 12 ECTS credits for the taught courses and 5 ECTS credits for the DDEFi project (team project with a private company).

The structure of the program DDEFi is the following

Team Project (from mid-September to late March/early April)						
English Name	**French name**	**Code**	**ECTS**	**Semester**	**Contact hours**	**Coordinator**
DDEFi project	Projet DDEFi		5	S10 (Spring)	100h	R. Bourlès

Period 1 (from early September to mid-November): Common core						
English Name	**French name**	**Code**	**Semester**	**ECTS**	**Contact hours**	**Coordinator**
Models and Decisions	Modèles et décisions		4	S9 (Fall-Winter)	100h	R. Bourlès

Period 2 (from mid-November to late January/early February): Major (1 course unit to be chosen)						
English Name	**French name**	**Code**	**ECTS**	**Semester**	**Contact hours**	**Coordinator**
Finance	Finance		4	S9 (Fall-Winter)	100h	R. Bourlès
Data and decisions	Données et décisions		4	S9 (Fall-Winter)	100h	R. Bourlès

Period 3 (from late January/early February to late March/early April): Specialised course unit (1 course unit to be chosen)							
English Name	**French name**	**Code**	**ECTS**	**Semester**	**Contact hours**	**Coordinator**	
Mathematical finance	Mathématiques financières		4	S9 (Fall-Winter)	100h		
Corporate finance	Finance d'entreprise		4	S9 (Fall-Winter)	100h		
Actuarial science	Actuariat		4	S9 (Fall-Winter)	100h		
Data analysis	Analyse et données		4	S9 (Fall-Winter)	100h		

If you attend the course unit Finance during Period 2, then you must choose between the course units Mathematical finance or Corporate finance. If you attend the course unit Data and decisions during Period 2, then you must choose between the course units Actuarial science or Data analysis.

If as an exchange student, you need more ECTS credits for your exchange semester than you can

take in the track DDEFi, then you have to choose course units in the following offer (beware that most courses are in French)

- 3rd Year Common Core in Management: 5 ECTS during S9 (Fall-Winter)
- International cultures and foreign languages: 2 ECTS during S9 (Fall-Winter)

For example you can attend a course called French as a Foreign Language (the introduction week for international students has also an intensive French language course that can give ECTS credits, check with the International Mobility Office).

- Professional track: 6 ECTS during S9 (Fall-Winter)

The professional tracks that best complement the track DDEFi are Entrepreneurship (ENT), Responsible and Environmental Transformations of Organizations (TREO), Data Analysis and Decision Support (ADAD) Research & Development (R&D) and Production-Logistics (PRL). Beware that each professional track has a maximum number of students and priority is oten given to degree-seeking students.

** Alternative solution: ** you can also attend courses in a Master programme or see if some joint courses between DDEFi track and Master programmes can be recognized as Master courses in your transcript of academic records.

** Please contact the DDEFi track deputy coordinator Prof. Christophe Pouet (christophe.pouet[A-T]centrale-med.fr with [A-T] replaced by @) for more information. **

Career prospects and postgraduate studies

DDEFi students are usually hired as interns or employees in the following areas:

- Banking, Finance: BP2S, BNP Paribas, Amundi,...
- Insurance, Actuarial Science: Axa, Crédit Agricole Assurances,...
- Audit, Consulting, Services: Mazars, E&Y, KPMG, Solucom,...
- Information Technology, Electronics, Telecommunication: Orange, CGI,...
- Luxury Industry: Chanel, Guerlain, L'Oréal,...
- Transportation: Renault, Airbus Helicopters,...

For a more complete list of companies, please check the webpage (in French) about DDEFi internship.

After their graduation at Centrale Méditerranée, some students have successfully applied for one of the following graduate/postgraduate programmes:

- Mastères spécialisés HEC, ESSEC, ESCP, EM Lyon
- Mastères spécialisés ENSAE (Actuariat, Finance de marché, Data Science)
- Mastère spécialisé IFP School
- Mastère spécialisé Mines de Paris
- Université Paris Dauphine (Paris Sciences et Lettres) :
    - Master Mathématiques et applications : MASEF, ISF, Actuariat
    - Finance
- Master MFD Ecole Nationale des Ponts et Chaussées et Université Gustave Eiffel
- Mastère spécialisé Ecole Nationale des Ponts et Chaussées M.S. Infrastructure Project Finance
- Master M2MO Université Paris Diderot

- Master Probabilités et Finance Sorbonne Université et Ecole Polytechnique
- Master London School of Economics
- MBA Collège des Ingénieurs: this MBA is targeted at outstanding young engineers and scientists and has campuses in Paris, München (Germany) and Torino (Italy)

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