

FIN-410

**Real options and financial structuring**

Arnold Marc

Cursus	Sem.	Type
Financial engineering minor	H	Opt.
Financial engineering	MA1, MA3	Opt.

Language of teaching	English
Credits	4
Session	Winter
Semester	Fall
Exam	During the semester
Workload	120h
Weeks	14
<b>Hours</b>	<b>3 weekly</b>
Courses	2 weekly
Exercises	1 weekly
<b>Number of positions</b>	

**Remark**

MA3 only. Special schedule: see the IF website <https://go.epfl.ch/fe>

**Summary**

The course covers advanced topics in corporate finance such as the design and valuation of corporate securities, the issuing process for these securities, real options, and their implications for valuation, financial structuring, and business development. It also applies the theory to case studies.

**Content**

1. Capital structure
2. The security issuance process
3. Valuation of corporate securities
4. Real options
5. Continuous time real option models

**Keywords**

Real options - financial contracting - financing decisions

**Learning Prerequisites****Required courses**

- Derivatives
- Introduction to finance
- Stochastic calculus

**Learning Outcomes**

By the end of the course, the student must be able to:

- Describe and apply the different valuation methods for corporate securities, such as discounted cash flow, peer comparison, and real option methods, and evaluate their relative performance in different settings.
- Explain the security issuance process, contrast the differences in this process for the issuance of equity and debt securities, and the agency costs associated with this process.

- Derive the optimal investment and financing strategies in structural real option models, and economically interpret the different parts of the equations.
- Discuss the methods for the valuation of real options and apply these concepts to problem settings in case studies.
- Coordinate and develop ideas how to solve specific problems related to the valuation of corporate securities and financial structuring, while working in a team.
- Structure and compose a document with solutions to questions related to the valuation of real options, and present these solutions in front of other students.
- Apply the intuitions and concepts to practical applications and the development of business ideas.

### Transversal skills

- Plan and carry out activities in a way which makes optimal use of available time and other resources.
- Communicate effectively, being understood, including across different languages and cultures.
- Negotiate effectively within the group.
- Make an oral presentation.
- Demonstrate the capacity for critical thinking

### Teaching methods

Lectures, assignments, case studies, and presentations.

The assignments and case studies are open book and done in groups of students

### Expected student activities

The students are expected to attend the lectures.

The students will work in groups to solve problem sets and case studies. They will have to hand in their solutions to the problem sets and case studies, which will be graded and count 40% towards the final grade. The case studies will also lead to short class presentations by teams of students.

### Assessment methods

40% Assignments and case studies

60% Final exam

Final exam is closed-book

### Resources

#### Bibliography

Dixit and Pindyck, Investment under Uncertainty, Princeton University Press

Berk and DeMarzo, Corporate Finance, Pearson Education

Tirole, The Theory of Corporate Finance, Princeton University Press

#### Ressources en bibliothèque

- [The Theory of Corporate Finance / Tirole](#)
- [Corporate Finance / Berk](#)
- [Investment under Uncertainty / Pindyck](#)