Primer on financial computing using MATLAB.

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Credit Value : 0 Units

1 Aims

1. To provide the basic tools and techniques in analysing and modelling plain vanilla options.
2. To provide a computational background for modelling these for a layman in computing.
3. To work through a any project based on numerical receipes.

2 Learning Outcome

At the end of the module students should have:

1. A critical awareness of current problems in the fields of numerical analysis for different financial problems on vanilla options.
2. The ability to formulate computational models for the purpose of programming and answering particular financial questions.
3. The ability to use appropriate tools and techniques in the context of a particular financial model.
4. The ability to work in group towards a project based on numerical receipes.

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3 Teaching and Learning Strategies .

1. Lecture
2. Tutorial
3. Group project

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4 Syllabus

1. Basic study of the derivation of the Black-Scholes-Merton Partial differential equation and related formula.
2. Basics of Finite difference methods applied to Black-Scholes PDE.
3. Basic concepts used in numerical computing enviroment (i.e. MatLab functions to deal with Black-Scholes model etc).

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5 Teaching Schedule

1. Lectures and Practicals of 1.5 hours spread across 5 days.
2. A group project.

6 Hours

1. Study Hours: 7.5 hrs.

2. Private group study: 2.5 hrs.

3. TOTAL HOURS: 10 hrs.

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7 Assessment

An informal assessment of the group project done at the end.

References

[1] A. Deshpande (2016), Financial computing literacy: 10 steps.

[2] Wilmott, P., Howison, S., J. Dewynne,The Mathematics of Financial Derivatives: A Student Introduction, Cambridge University Press,1995.