

Module Handbook

Module Name:	Econophysics
Module Level:	Bachelor
Abbreviation, if applicable:	FI 3261
Sub-heading, if applicable:	
Courses included in the module, if applicable:	
Semester/term:	6 / third Years
Module coordinator(s):	
Lecturer(s):	
Language:	Bahasa Indonesia
Classification within the curriculum:	General Studies / Major Subject / Elective Studies
Teaching format / class hours per week during the semester:	2 hours lectures
Workload:	2 hours lectures, 4 hours individual study, 16 weeks per semester, and total 96 hours a semester
Credit Points:	2
Requirements:	Mathematical Physics IA, Mathematical Physics IIA, Thermodynamics
Learning goals:	<p>Knowledge:</p> <ol style="list-style-type: none"> 1. Demonstrate knowledge of complexity theory on econophysics 2. Ability to identify the connections among stocks by using some physical methods <p>Skill:</p> <ol style="list-style-type: none"> 1. Ability to solve a statistical physics problem in many-body system 2. Ability to analyze a turbulence case and seek the connections in finance. 3. Ability to formulate the connections among stocks by using some physical methods 4. Ability to apply some physical methods in some financial problems
Content:	Introduction and Chaos Approach, Concepts of Random walk and complexity theory, stochastic processes and self-similarity Levy and fractal approach, the Scale Data Financial, time correlation and volatility, stochastic model price dynamics, and turbulent financial markets, Nature rare event statistics, correlation and antikorelasi between stocks, Option on the market ideal and the real market.
Study/exam achievements:	Students are considered to be competent and pass if at least get 50% of maximum mark of the exams, homework, quizzes
Forms of Media:	Slides and LCD projectors, blackboards
Literature:	<ol style="list-style-type: none"> 1. R.N. Mantegna and H.E. Stanley, An introduction to Econophysics, 2007, Cambridge Press. 2. J. Voit, The Statistical Mechanics of Financial Market, 2010, Springer.
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