

Tamkang University Academic Year 111, 2nd Semester Course Syllabus

Course Title	ALGORITHM TRADING	Instructor	CHEN, SHIH-HSIN
Course Class	TEIBM1A MASTER'S PROGRAM, DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING (ENGLISH-TAUGHT PROGRAM),	Details	◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	1A SDG1 No poverty SDG9 Industry, Innovation, and Infrastructure		
D e p a r t m e n t a l A i m o f E d u c a t i o n			
I . Cultivate the ability to conduct independent research and problem solving. II . Strengthen creativity and research capacity. III . Build profound professional knowledge in computer science and information engineering. IV . Engage in self-directed lifelong learning.			
Subject Departmental core competences			
A. Independent problem solving ability.(ratio:20.00) B. Independent innovative thinking ability.(ratio:20.00) C. Research paper writing and presentation ability.(ratio:10.00) D. Research & development (R&D) ability in information engineering.(ratio:20.00) E. Project execution and control ability.(ratio:10.00) F. Lifelong self-directed learning ability.(ratio:20.00)			
Subject Schoolwide essential virtues			
1. A global perspective. (ratio:20.00) 2. Information literacy. (ratio:20.00) 3. A vision for the future. (ratio:10.00) 4. Moral integrity. (ratio:10.00) 5. Independent thinking. (ratio:10.00) 6. A cheerful attitude and healthy lifestyle. (ratio:10.00) 7. A spirit of teamwork and dedication. (ratio:10.00) 8. A sense of aesthetic appreciation. (ratio:10.00)			

Course Introduction	<p>FinTech involves numerous algorithm trading scenarios. This class introduces some famous trading algorithms and technical analysis for the foreign exchange and stock markets. Besides, we employ the MT5 simulation account to get the real data, implement the algorithms, conduct the backtest, and run the program for a period of time. After running the experiments, it is also critical to understand the performance of the trading results by the profit factor, Sharpe ratio, Z score, and so on.</p>
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The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.

Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.

- I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.
- II.Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.
- III.Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.

No.	Teaching Objectives	objective methods
1	Understand the famous trading algorithms and financial programming	Cognitive

The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCDEF	12345678	Lecture, Practicum	Testing, Study Assignments, Discussion(including classroom and online)

Course Schedule

Week	Date	Course Contents	Note
1	112/02/13 ~ 112/02/19	Course introduction	
2	112/02/20 ~ 112/02/26	Quick start	
3	112/02/27 ~ 112/03/05	Basics of Foreign Exchange Trading	
4	112/03/06 ~ 112/03/12	Programming Part 1: Moving average examples	
5	112/03/13 ~ 112/03/19	Chapter 2: Trend Analysis.	

6	112/03/20 ~ 112/03/26	Report: Chapter 3 to Chapter 7.	
7	112/03/27 ~ 112/04/02	Programming Part 2: Moving averages with ADX and Position update (Partial Close and Trailing stop). Part 3: Walk forward test.	
8	112/04/03 ~ 112/04/09	Spring festival	
9	112/04/10 ~ 112/04/16	Implementations of the trading strategy	
10	112/04/17 ~ 112/04/23	Midterm report	
11	112/04/24 ~ 112/04/30	Programming Part 4: M and W patterns programming. Programming Part 5: 123 patterns	
12	112/05/01 ~ 112/05/07	CH7: Risk Management	
13	112/05/08 ~ 112/05/14	Report: Slingshot, The Psychology of Successful Trading, Putting It All Together, Epilogue.	
14	112/05/15 ~ 112/05/21	Programming Part 6: How to avoid the overfitting problem?	
15	112/05/22 ~ 112/05/28	Report: Paper reading.	
16	112/05/29 ~ 112/06/04	Implementation of the final term project	
17	112/06/05 ~ 112/06/11	Final term project presentation	
18	112/06/12 ~ 112/06/18	Final term project presentation	
Requirement			
Teaching Facility		Computer, Projector	
Textbooks and Teaching Materials			
References		How to Make a Living Trading Foreign Exchange: A Guaranteed Income for Life, Courtney Smith, 2010.	
Number of Assignment(s)		5 (Filled in by assignment instructor only)	
Grading Policy		◆ Attendance : 10.0 % ◆ Mark of Usual : 40.0 % ◆ Midterm Exam : 25.0 % ◆ Final Exam : 25.0 % ◆ Other 〈 〉 : %	

Note	<p>This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php.</p> <p>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</p>
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