



UNSW Course Outline

FINS5566 Trading in Financial Securities - 2024

Published on the 28 Jan 2024

General Course Information

Course Code : FINS5566

Year : 2024

Term : Term 1

Teaching Period : T1

Is a multi-term course? : No

Faculty : UNSW Business School

Academic Unit : School of Banking and Finance

Delivery Mode : In Person

Delivery Format : Standard

Delivery Location : Kensington

Campus : Sydney

Study Level : Postgraduate

Units of Credit : 6

Useful Links

[Handbook Class Timetable](#)

Course Details & Outcomes

Course Description

The course provides a practical insight into quantitative trading. It provides students with a comprehensive understanding of quantitative analysis in financial markets, emphasizing risk management and the development of effective trading strategies. Through theoretical concepts,

practical exercises, and real-world applications, students gain knowledge in statistical analysis, algorithmic trading, market microstructure, risk management, and back testing. By the end of the course, students will have acquired the skills to analyse financial data, assess market dynamics, manage risks, and evaluate the performance of trading strategies through back testing.

Course Aims

This course aims to:

1. Understand the role and importance of quantitative analysis in financial markets.
2. Gain knowledge of different trading strategies and their application in quantitative trading.
3. Develop skills in statistical analysis, modeling, and data interpretation for trading strategy development.
4. Learn how to assess and manage risks associated with trading strategies and evaluate their performance through back testing.

Relationship to Other Courses

Prerequisites for the course are COMM5003 and FINS5512.

The knowledge of statistical analysis and programming would be an advantage.

The course is related to FINS5535 Options, Futures, and Risk Management.

Course Learning Outcomes

Course Learning Outcomes	Program learning outcomes
CLO1 : Knowledge: Students will demonstrate a solid understanding of quantitative analysis in financial markets, including the different trading strategies employed and the importance of risk management.	
CLO2 : Application: Students will be able to apply statistical analysis and modeling techniques to derive insights from financial data, enabling them to develop and evaluate trading strategies.	<ul style="list-style-type: none">• PLO1 : Business Knowledge• PLO2 : Problem Solving• PLO4 : Teamwork
CLO3 : Skills: Students will develop practical skills in back testing and performance evaluation, including the ability to design, conduct, and interpret back tests to assess the performance of trading strategies. They will also learn how to evaluate and optimize trading strategies based on the results obtained.	<ul style="list-style-type: none">• PLO1 : Business Knowledge• PLO2 : Problem Solving• PLO3 : Business Communication
CLO4 : Critical Thinking: Students will develop critical thinking skills in assessing market microstructure, analyzing order book dynamics, and understanding the impact of market liquidity on trading strategies.	

Course Learning Outcomes	Assessment Item
CLO1 : Knowledge: Students will demonstrate a solid understanding of quantitative analysis in financial markets, including the different trading strategies employed and the importance of risk management.	<ul style="list-style-type: none"> • Individual Assessments • Project Assessments • Final Assessments
CLO2 : Application: Students will be able to apply statistical analysis and modeling techniques to derive insights from financial data, enabling them to develop and evaluate trading strategies.	<ul style="list-style-type: none"> • Individual Assessments • Project Assessments • Final Assessments
CLO3 : Skills: Students will develop practical skills in back testing and performance evaluation, including the ability to design, conduct, and interpret back tests to assess the performance of trading strategies. They will also learn how to evaluate and optimize trading strategies based on the results obtained.	<ul style="list-style-type: none"> • Project Assessments • Final Assessments
CLO4 : Critical Thinking: Students will develop critical thinking skills in assessing market microstructure, analyzing order book dynamics, and understanding the impact of market liquidity on trading strategies.	<ul style="list-style-type: none"> • Individual Assessments • Project Assessments • Final Assessments

Learning and Teaching Technologies

Moodle - Learning Management System | Echo 360 | Zoom

Learning and Teaching in this course

.Given the practical nature of the course, the teaching approach will be a mixture of lectures (& guest lectures), group discussions and market simulations. This course consists of weekly three hour sessions -the lecture will be highly interactive and industry relevant. Guest lectures do NOT replace the lecture content. Guest lectures are embedded to give 'career focused' education

To enhance Career Focussed Education we have a number of teaching aims.

- Create a climate of engagement, dialogue and ongoing feedback between students and teaching staff regarding the course content, teaching strategies, learning experiences and outcomes (Guidelines on Learning that Inform Teaching at UNSW (GLIT) numbers 2,7,10);
- Cater for a variety of learning preferences and abilities by providing a range of learning activities and teaching methods (GLIT number 9);
- Develop independent learning skills and create an environment that both provides structure and guidance as well as encouraging students to extend their learning (GLIT numbers 2,11);

- Develop skills in collaboration and teamwork, which is directly relevant to the skills required of a Finance professional (GLIT numbers 6, 14)

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates	Program learning outcomes
Individual Assessments Assessment Format: Individual	30%	Start Date: See Detailed Assessment Description Due Date: See Detailed Assessment Description	<ul style="list-style-type: none"> • PLO1 : Business Knowledge • PLO2 : Problem Solving • PLO3 : Business Communication • PLO4 : Teamwork • PLO7 : Leadership Development
Project Assessments Assessment Format: Group	30%	Start Date: See Detailed Assessment Description Due Date: See Detailed Assessment Description	<ul style="list-style-type: none"> • PLO1 : Business Knowledge • PLO2 : Problem Solving • PLO3 : Business Communication • PLO4 : Teamwork • PLO7 : Leadership Development
Final Assessments Assessment Format: Individual	40%	Start Date: See Detailed Assessment Description Due Date: See Detailed Assessment Description	<ul style="list-style-type: none"> • PLO1 : Business Knowledge • PLO2 : Problem Solving

Assessment Details

Individual Assessments

Assessment Overview

Individual assessments include quizzes, online assignments, and class contributions made during the term that assess the degree of knowledge, application, and critical thinking learned throughout the course.

Assesses: PLO1, PLO2, PLO3, PLO4, PLO7

Course Learning Outcomes

- CLO1 : Knowledge: Students will demonstrate a solid understanding of quantitative analysis in financial markets, including the different trading strategies employed and the importance of risk management.
- CLO2 : Application: Students will be able to apply statistical analysis and modeling techniques to derive insights from financial data, enabling them to develop and evaluate trading strategies.
- CLO4 : Critical Thinking: Students will develop critical thinking skills in assessing market

microstructure, analyzing order book dynamics, and understanding the impact of market liquidity on trading strategies.

Detailed Assessment Description

Weight	Assessment Name	Assessment Due Date / Timing	
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10% Classcontribution On-going, weeks 1-10

20% Mid-term Quiz (online) Week 5 (Day/time in Week 1 Moodle Announcement)

Class contribution 10%

Class contribution refers to the active and meaningful participation during lectures and discussions. It goes beyond merely attending classes and involves engaging in discussions, sharing perspectives, asking questions, and contributing insights that enhance the learning experience for both oneself and fellow classmates.

Mid-term Quiz 20%

The midterm quiz will encompass content from lectures conducted in weeks 1 to 4. The primary emphasis of the quiz will be on the hands-on implementation of the concepts covered during this period.

The quiz will be online via Moodle and will need to be completed in 2 hours.

Assignment submission Turnitin type

Not Applicable

Project Assessments

Assessment Overview

Project assessment involves primarily working in small teams to apply the quantitative analysis, modeling techniques, and trading strategies learned throughout the course. Some individual components may be included where the case may arise.

Assesses: PLO1, PLO2, PLO3, PLO4, PLO7

Course Learning Outcomes

- CLO1 : Knowledge: Students will demonstrate a solid understanding of quantitative analysis in financial markets, including the different trading strategies employed and the importance

of risk management.

- CLO2 : Application: Students will be able to apply statistical analysis and modeling techniques to derive insights from financial data, enabling them to develop and evaluate trading strategies.
- CLO3 : Skills: Students will develop practical skills in back testing and performance evaluation, including the ability to design, conduct, and interpret back tests to assess the performance of trading strategies. They will also learn how to evaluate and optimize trading strategies based on the results obtained.
- CLO4 : Critical Thinking: Students will develop critical thinking skills in assessing market microstructure, analyzing order book dynamics, and understanding the impact of market liquidity on trading strategies.

Detailed Assessment Description

Weight	Assessment Name	Assessment Due Date / Timing	
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30%	GroupProject	Week 7	
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Group Project 30%

The group project offers an opportunity for collaborative work in applying quantitative analysis to practical problems. You can choose to examine a research paper, design a trading strategy or even evaluate the merits of specific trading styles. The scope of the project is very broad. Higher marks will be awarded to projects that provide genuine insight.

The group projects will be presented in class during week 7 with a short discussion to follow.

Assignment submission Turnitin type

Not Applicable

Final Assessments

Assessment Overview

Final assessments consist primarily of a final examination that assesses the knowledge and applications of the course. Other types of assessment may be included.

Assesses: PLO1, PLO2

Course Learning Outcomes

- CLO1 : Knowledge: Students will demonstrate a solid understanding of quantitative analysis in financial markets, including the different trading strategies employed and the importance of risk management.
- CLO2 : Application: Students will be able to apply statistical analysis and modeling

techniques to derive insights from financial data, enabling them to develop and evaluate trading strategies.

- CLO3 : Skills: Students will develop practical skills in back testing and performance evaluation, including the ability to design, conduct, and interpret back tests to assess the performance of trading strategies. They will also learn how to evaluate and optimize trading strategies based on the results obtained.
- CLO4 : Critical Thinking: Students will develop critical thinking skills in assessing market microstructure, analyzing order book dynamics, and understanding the impact of market liquidity on trading strategies.

Detailed Assessment Description

Weight	Assessment Name	Assessment Due Date / Timing	
40%	FinaExam	During UNSW Final Exam Period	

Final Exam 40%

The final exam will encompass content from lectures conducted in weeks 1 to 10. The primary emphasis of the exam will be on the hands-on implementation of the concepts covered during this period.

Assignment submission Turnitin type

Not Applicable

General Assessment Information

As a student at UNSW you are expected to display [academic integrity](#) in your work and interactions. Where a student breaches the [UNSW Student Code](#) with respect to academic integrity, the University may take disciplinary action under the Student Misconduct Procedure. To assure academic integrity, you may be required to demonstrate reasoning, research and the process of constructing work submitted for assessment.

To assist you in understanding what academic integrity means, and how to ensure that you do comply with the UNSW Student Code, it is strongly recommended that you complete the [Working with Academic Integrity](#) module before submitting your first assessment task. It is a free, online self-paced Moodle module that should take about one hour to complete.

Grading Basis

Standard

Requirements to pass course

In order to pass this course students must:

- Achieve a composite mark of at least 50 out of 100
- Engage actively in course learning activities and attempt all assessment requirements
- Meet any additional requirements specified in the assessment details
- Meet the specified attendance requirements of the course (see Schedule section)

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Lecture	Introduction to Quantitative Trading <ul style="list-style-type: none"> • Understanding the role of quantitative analysis in financial markets • Overview of different trading strategies including Market Making vs Prop Trading • Importance of risk management in quantitative trading
Week 2 : 19 February - 25 February	Lecture	Applying Statistical Methods <ul style="list-style-type: none"> • Data analysis and pre-processing • Statistical techniques • Modelling tools Time series analysis for forecasting price movements • Regression analysis for identifying relationships between variables
Week 3 : 26 February - 3 March	Lecture	Algorithmic Trading <ul style="list-style-type: none"> • Introduction to algorithmic trading concepts • Advantages of algorithmic trading • Different order types and their applications • Execution strategies and tactics in algorithmic trading • Utilizing trading platforms and APIs for algorithmic trading
Week 4 : 4 March - 10 March	Lecture	Market Microstructure <ul style="list-style-type: none"> • Understanding the structure and dynamics of financial markets • Order book analysis and interpreting market depth • Analysing trade flow • Impact of market liquidity on trading strategies
Week 5 : 11 March - 17 March	Lecture	Know Your Alpha <ul style="list-style-type: none"> • Understanding your edge • Alpha vs Beta • Alpha Decay • Strategy robustness and implementation strategy
	Assessment	Mid-term Quiz - Day/ time in Week 1 Moodle Announcement.
Week 6 : 18 March - 24 March	Lecture	Strategy Robustness <ul style="list-style-type: none"> • Monte Carlo simulations for assessing strategy robustness • Sensitivity analysis and stress testing of trading strategies • Handling transaction costs and slippage
Week 7 : 25 March - 31 March	Group Work	Group presentations
Week 8 : 1 April - 7 April	Lecture	Risk Management and Optimization <ul style="list-style-type: none"> • Introduction to risk metrics and measures in trading • Strategy selection and diversification • Role of optimization in managing risk-return trade-offs
Week 9 : 8 April - 14 April	Lecture	Backtesting and Performance Evaluation <ul style="list-style-type: none"> • Importance of backtesting in evaluating trading strategies • Setting up a backtesting environment • Conducting backtests and interpreting results • Performance evaluation metrics for trading strategies
Week 10 : 15 April - 21 April	Lecture	Strategy Refinement and Implementation <ul style="list-style-type: none"> • Improving and refining trading strategies based on backtest results • Implementing strategies in live trading environments • Risk management in live trading scenarios • Review and conclusion of the course

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

Note: for more information on the UNSW academic calendar and key dates including study period, exam, supplementary exam and result release, please visit: <https://student.unsw.edu.au/new-calendar-dates>

Course Resources

Prescribed Resources

Recommended Readings:

Marco Avellaneda & Sasha Stoikov, "High-frequency trading in a limit order book"

Ernest P. Chan, "Quantitative Trading"

Professor Steven S. Skiena, "Calculated Bets"

Aldridge, Irene, "High-Frequency Trading: A Practical Guide to Algorithmic Strategies and Trading Systems"

Nate Silver, "The Signal And The Noise: The Art And Science Of Prediction"

Peter L. Bernstein, "Against the Gods: The Remarkable Story of Risk"

Peter L. Bernstein "Capital Ideas: The Improbable Origins of Modern Wall Street"

Glynis M. Breakwell, "The Psychology of Risk"

Course Evaluation and Development

Feedback is regularly sought from students and continual improvements are made based on this feedback. At the end of this course, you will be asked to complete the myExperience survey, which provides a key source of student evaluative feedback. Your input into this quality enhancement process is extremely valuable in assisting us to meet the needs of our students and provide an effective and enriching learning experience. The results of all surveys are carefully considered and do lead to action towards enhancing educational quality.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Michael Kogan				TBA	No	Yes

Other Useful Information

Academic Information

COURSE POLICIES AND SUPPORT

The Business School expects that you are familiar with the contents of this course outline and the UNSW and Business School learning expectations, rules, policies and support services as listed below:

- Program Learning Outcomes
- Academic Integrity and Plagiarism
- Student Responsibilities and Conduct
- Special Consideration
- Protocol for Viewing Final Exam Scripts
- Student Learning Support Services

Further information is provided on the [key policies and support page](#).

Students may not circulate or post online any course materials such as handouts, exams, syllabi or similar resources from their courses without the written permission of their instructor.

STUDENT LEARNING OUTCOMES

The Course Learning Outcomes (CLOs) – under the Outcomes tab – are what you should be able to demonstrate by the end of this course, if you participate fully in learning activities and successfully complete the assessment items.

CLOs also contribute to your achievement of the Program Learning Outcomes (PLOs), which are developed across the duration of a program. PLOs are, in turn, directly linked to [UNSW graduate capabilities](#). More information on Coursework PLOs is available on the [key policies and support page](#). For PG Research PLOs, including MPDBS, please refer to the [UNSW HDR Learning Outcomes](#).

Academic Honesty and Plagiarism

As a student at UNSW you are expected to display [academic integrity](#) in your work and interactions. Where a student breaches the [UNSW Student Code](#) with respect to academic integrity, the University may take disciplinary action under the Student Misconduct Procedure. To assure academic integrity, you may be required to demonstrate reasoning, research and the process of constructing work submitted for assessment.

To assist you in understanding what academic integrity means, and how to ensure that you do comply with the UNSW Student Code, it is strongly recommended that you complete the [Working with Academic Integrity](#) module before submitting your first assessment task. It is a free, online self-paced Moodle module that should take about one hour to complete.

Submission of Assessment Tasks

SPECIAL CONSIDERATION

You can apply for special consideration when illness or other circumstances beyond your control interfere with your performance in a specific assessment task or tasks, including online exams. Students studying remotely who have exams scheduled between 10pm and 7am local time, are also able to apply for special consideration to sit a supplementary exam at a time outside of these hours.

Special consideration is primarily intended to provide you with an extra opportunity to demonstrate the level of performance of which you are capable. To apply, and for further information, see Special Consideration on the UNSW [Current Students](#) page.

Special consideration applications will be assessed centrally by the Case Review Team, who will update the online application with the outcome and add any relevant comments. The change to the status of the application immediately sends an email to the student and to the assessor with the outcome of the application.

Please note the following:

1. Applications can only be made through Online Services in myUNSW (see the UNSW [Current Students](#) page). Applications will not be accepted by teaching staff. The lecturer-in-charge/course coordinator will be automatically notified when your application is processed.
2. Applying for special consideration does not automatically mean that you will be granted a

- supplementary exam or other concession.
3. If you experience illness or misadventure in the lead up to an exam or assessment, you must submit an application for special consideration, either prior to the examination taking place, or prior to the assessment submission deadline, except where illness or misadventure prevent you from doing so.
 4. If your circumstances stop you from applying before your exam or assessment due date, you must apply within 3 working days of the assessment or the period covered by your supporting documentation.
 5. Under the UNSW Fit To Sit/Submit rule, if you sit the exam/submit an assignment, you are declaring yourself well enough to do so and are cannot subsequently apply for special consideration.
 6. If you become unwell on the day of – or during – an exam, you must stop working on your exam, advise your course coordinator or tutor and provide a medical certificate dated within 24 hours of the exam, with your special consideration application. For online exams, you must contact your course coordinator or tutor immediately via email, Moodle or chat and advise them you are unwell and submit screenshots of your conversation along with your medical certificate and application.
 7. Special consideration requests do not allow the awarding of additional marks to students.

Further information on Business School policy and procedure can be found under “Special Consideration” on the [key policies and support](#) page.

LATE SUBMISSION PENALTIES

For assessments other than examinations, late submission will incur a penalty of 5% per day or part thereof (including weekends) from the due date and time. An assessment will not be accepted after 5 days (120 hours) of the original deadline unless special consideration has been approved. An assignment is considered late if the requested format, such as hard copy or electronic copy, has not been submitted on time or where the ‘wrong’ assignment has been submitted.

For assessments which account for 10% or less of the overall course grade, and where answers are immediately discussed or debriefed, the LIC may stipulate a different penalty. Details of such late penalties will be available on the course Moodle page.

FEEDBACK ON YOUR ASSESSMENT TASK PERFORMANCE

Feedback on student performance from formative and summative assessment tasks will be provided to students in a timely manner. Assessment tasks completed within the teaching period of a course, other than a final assessment, will be assessed and students provided with

feedback, with or without a provisional result, within 10 working days of submission, under normal circumstances. Feedback on continuous assessment tasks (e.g. laboratory and studio-based, workplace-based, weekly quizzes) will be provided prior to the midpoint of the course.

Faculty-specific Information

PROTOCOL FOR VIEWING FINAL EXAM SCRIPTS

UNSW students have the right to view their final exam scripts, subject to a small number of very specific exemptions. The UNSW Business School has set a [protocol](#) under which students may view their final exam script. Individual schools within the Faculty may also set up additional local processes for viewing final exam scripts, so it is important that you check with your School.

If you are completing courses from the following schools, please note the additional school-specific information:

- Students in the **School of Accounting, Auditing & Taxation** who wish to view their final examination script should also refer to [this page](#).
- Students in the **School of Banking & Finance** should also refer to [this page](#).
- Students in the **School of Information Systems & Technology Management** should also refer to [this page](#).

COURSE EVALUATION AND DEVELOPMENT

Feedback is regularly sought from students and continual improvements are made based on this feedback. At the end of this course, you will be asked to complete the [myExperience survey](#), which provides a key source of student evaluative feedback. Your input into this quality enhancement process is extremely valuable in assisting us to meet the needs of our students and provide an effective and enriching learning experience. The results of all surveys are carefully considered and do lead to action towards enhancing educational quality.

QUALITY ASSURANCE

The Business School is actively monitoring student learning and quality of the student experience in all its programs. A random selection of completed assessment tasks may be used for quality assurance, such as to determine the extent to which program learning goals are being achieved. The information is required for accreditation purposes, and aggregated findings will be used to inform changes aimed at improving the quality of Business School programs. All material used for such processes will be treated as confidential.

TEACHING TIMES AND LOCATIONS

Please note that teaching times and locations are subject to change. Students are strongly advised to refer to the [Class Timetable website](#) for the most up-to-date teaching times and locations.