

Minor Program Adjustment

Faculty: Faculty of Business and IT	Date: October 11, 2017
Program: Finance Minor in Bachelor of Science in Physics	
Undergraduate: <input checked="" type="checkbox"/> *	Graduate: <input type="checkbox"/>

Minor Program Adjustments include: New required courses, Deletion of required courses, Other changes to degree requirements or program learning outcomes, New academic requirements or changes to existing requirements.

Motion: That CPRC approve the Minor in Finance for the Bachelor of Science Physics Program including all specializations and the update to the finance electives for both the Physics and Applied and Industrial Mathematics Programs.

Proposal Brief

Summary of the proposed change

The finance minor has already been approved in the Applied and Industrial Mathematics Program. We propose to extend it to Physics Program with any specializations. The finance elective courses have been updated to include BUSI3460U Fixed Income Strategies and BUSI4400 Electronic Trading and Exchange.

Eligible students will be required to take 18 credit hours in finance courses including four required courses and two elective courses. The Physics program and their specializations contains 10 elective choices for students, leaving them with ample opportunity to minor.

Description of the ways in which the proposed change will enhance the program and/or opportunities for students

- (1) The finance service industry has a significant demand for employees with Mathematics/Physics and Finance skills. Taking a finance minor helps these students in job market and career.
- (2) We add more electives to give students more exposure to different subjects.
- (3) Admission requirement is unchanged.

Process of consultation with other units if the change(s) involves students, staff, and/or faculty from other programs or courses

The Faculty of Business and Information Technology has collaborated with the applied and industrial mathematics program, the physics program, and the faculty advisors from both the Faculty of Business and IT and the Faculty of Science in the development of this minor.

Analysis of financial and enrolment implications

Faculty of Business and IT will see a slight increase in enrollment in the required finance courses, which will be taken into account when scheduling and allocating space for these courses.

There are pre-requisites requirement in the Finance core and elective courses listed below and Academic Advising will waive the pre-requisites for students in this minor to enable them to register in the courses.

Proposed Implementation Date

Fall 2018. Applications begin in Winter 2018 for year 2 students in the Physics and Applied Industrial Math program.

Transition Plan (include a plan for all current students in the program, by year level)

N/A

Calendar Copy and/or Program Maps (highlight revisions to existing curriculum)

Finance minor (Applied and Industrial Mathematics and Physics)

General information

A minor in Finance is available to students in the Applied and Industrial Mathematics and Physics program at UOIT. Mathematics is a key component of problem solving, from the modelling of atmospheric physics to the complexities of managing risk in financial markets. For instance computational finance focused on the measurement, management and analysis of financial risk, and detailed insight into numerical and computational techniques in the pricing, hedging and risk management of financial instruments. Furthermore, it is well understood and noticed that modern finance is becoming increasingly technical, requiring the use of sophisticated mathematical tools in both research and practice.

Admission requirements

Students can apply to the finance minor in the winter semester of their second year. Admission is competitive and based on performance in the program as well as previous business courses. Students must have a minimum 2.3 GPA (C+ average on a 4.3 scale) to be considered as well as a minimum C+ grade in each BUSI 2050U Managerial Economics or ECON 2020U Macroeconomics AND BUSI 2410U Managerial Finance to be considered.

Finance minor core courses

- BUSI 2410U – Managerial Finance
- BUSI 3405U – Equity Asset Analysis
BUSI 3420U – Derivative Securities
- One of:
- BUSI 2050U – Managerial Economics or
- ECON 2020U – Macroeconomics

Finance minor electives (choose two)*

- BUSI 3440U – Financial Modelling
- BUSI 3480U – International Finance
- BUSI 3460U – Fixed Income Strategies
- BUSI 4405U – Portfolio and Investment Strategies
- BUSI 4400U - Electronic Trading and Exchange
- BUSI 4440U – Financial Econometrics

- BUSI 4490U – Special Topics in Finance

Applied and Industrial Mathematics program map incorporating Finance minor

Students follow the Applied and Industrial Mathematics program map for Year 1. The program map for Year 1 as well as a list of approved electives** are available on the [Applied and Industrial Mathematics](#) program page. Years 2, 3 and 4 are detailed below.

Year 2

Semester 1 (15 credit hours)

- BUSI2050 Managerial Economics or ECON 2020 Macroeconomics
- CSCI 2000U – Scientific Data Analysis
- MATH 2015U – Calculus III
- MATH 2080U – Discrete Mathematics
- STAT 2010U – Statistics and Probability for Physical Science

Semester 2 (15 credit hours)

- ~~Two~~ One electives*
- BUSI2410U Managerial Finance
- MATH 2055U – Advanced Linear Algebra and Applications
- MATH 2060U – Differential Equations
- MATH 2072U – Computational Science I

Year 3

Semester 1 (15 credit hours)

- Applied and Industrial Mathematics elective*
- ~~Two~~ One electives*
- BUSI3405U Equity Asset
- MATH 3020U – Real Analysis
- MATH 3050U – Mathematical Modelling

Semester 2 (15 credit hours)

- Applied and Industrial Mathematics elective*
- ~~Elective~~* Finance Elective
- MATH 3060U – Complex Analysis
- MATH 4020U – Computational Science II
- PHY 3040U – Mathematical Physics

Year 4

Semester 1 (15 credit hours)

- Applied and Industrial Mathematics elective*
- ~~Elective~~* BUSI3420 Derivative Securities
- MATH 4010U – Dynamical Systems and Chaos
- MATH 4050U – Partial Differential Equations
- One of:
- MATH 4410U – Mathematics Thesis Project I ** or
- Senior Science elective**

Semester 2 (15 credit hours)

- Applied and Industrial Mathematics elective*
- ~~Two~~ One elective*

- Finance Elective
- MATH 4060U – Industrial Mathematics
- One of:
- MATH 4420U – Mathematics Thesis Project II ** or
- Senior Science elective**

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Bachelor of Science Physics program map incorporating the finance minor

Students follow the Physics program map for Year 1. The program map for Year 1 as well as a list of approved electives** are available on the Physics program page. Years 2, 3 and 4 are detailed below.

Year 2

Semester 1 (15 credit hours)

- **BUSI2050U or ECON 2020**
- CSCI 2000U – Scientific Data Analysis
- MATH 2015U – Calculus III
- PHY 2030U – Mechanics I
- PHY 2050U – Thermodynamics and Heat Transfer

Semester 2 (15 credit hours)

- **BUSI2410U**
- MATH 2060U – Differential Equations
- PHY 2010U – Electricity and Magnetism I
- PHY 2040U – Mechanics II
- STAT 2010U – Statistics and Probability for Physical Science

Year 3

Semester 1 (15 credit hours)

- **Elective BUSI3405U Equity Asset**
- Senior Physics elective*
- PHY 3020U – Quantum Mechanics I
- PHY 3040U – Mathematical Physics
- PHY 3050U – Waves and Optics

Semester 2 (15 credit hours)

- ~~Two~~ **One electives***
- **Finance Elective**
- Senior Physics elective*
- PHY 3010U – Statistical Mechanics
- PHY 3030U – Electronics

Year 4

Semester 1 (15 credit hours)

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- **Elective BUSI3420U Derivative Securities**
 - Senior Physics elective*
 - PHY 3080U – Electricity and Magnetism II
 - PHY 4020U – Quantum Mechanics II
 - One of:
 - PHY 4410U – Physics Thesis Project I ** or
 - Senior Science elective**

Semester 2 (15 credit hours)

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- ~~Two~~ **One electives***
 - **Finance Elective**
 - Senior Physics elective*
 - PHY 4010U – Condensed Matter
 - One of:
 - PHY 4420U – Physics Thesis Project II ** or
 - Senior Science elective**

APPROVAL DATES

Curriculum Committee approval	October 23, 2017
Faculty Council approval	November 2, 2017
CPRC Approval	17 November 2017
Submission to Academic Council	