Bachelor of Mathematics/Bachelor of Business (Accountancy, Banking and Finance or Economics) (IF60)

Year offered: 2010  
Admissions: No  
CRICOS code: 027274G  
Course duration (full-time): 4 Years  
Domestic fees (indicative): 2010: CSP $3,300 (indicative) per semester  
Domestic Entry: February  
International Entry: February and July  
QTAC code: 419212  
Past rank cut-off: 80  
Past OP cut-off: 10  
OP Guarantee: Yes  
Assumed knowledge: English (4, SA) and Maths B (4, SA)  
Total credit points: 432  
Standard credit points per full-time semester: 54 (Average)  
Course coordinator: Prof Erhan Kozan (Science and Technology); Dr Erica French (Business)  
Discipline coordinator: Ms Ros Kent (Accountancy); Dr Tommy Tang (Economics); Dr Anup Basu (Finance)  
Campus: Gardens Point

Course structure - Accountancy Major (For students with SA in Senior Maths B & C)

<table>
<thead>
<tr>
<th>Year 1, Semester 1</th>
<th>Year 2, Semester 2</th>
<th>Year 3, Semester 1</th>
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<tbody>
<tr>
<td>BSB110 Accounting</td>
<td>AYB221 Computerised Accounting Systems</td>
<td>AYB225 Management Accounting</td>
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Students should refer to the BS56 Course Notes entry for information on double major/extended major/specialisation units

Note: Please refer to "Course Updates - List of
re-coded and replacement Business units* to check for course structure changes.

Course structure - Accountancy Major (For students with SA in Senior Maths B only)

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NOTE: Students must select BSB119 International & Electronic Business to replace one of the Mathematics Electives.

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NOTE: Please refer to "Course Updates - List of re-coded and replacement Business units" to check for course structure changes.

Course structure - Banking and Finance Major (for students with SA in Senior Maths B & C)

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<td>BSB122</td>
<td>Quantitative Analysis and Finance</td>
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<td>EFB102</td>
<td>Economics 2</td>
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<td>MAB112</td>
<td>Mathematical Sciences 1C</td>
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Published on: 16 May 2011
Course structure - Banking and Finance Major (for students with SA in Senior Maths B only)

Year 1, Semester 1
BSB110 Accounting
BSB113 Economics
MAB100 Mathematical Sciences 1A
MAB101 Statistical Data Analysis 1

Year 1, Semester 2
BSB122 Quantitative Analysis and Finance
EFB102 Economics 2
MAB111 Mathematical Sciences 1B
MAB112 Mathematical Sciences 1C
MAB210 Statistical Modelling 1

Year 2, Semester 1
BSB126 Marketing
EFB210 Finance 1
MAB311 Advanced Calculus
Mathematics Elective (Level 2)

Year 2, Semester 2
BSB111 Business Law and Ethics
BSB114 Government, Business and Society
EFB307 Finance 2
MAB220 Computational Mathematics 1
MAB313 Mathematics of Finance

Year 3, Semester 1
BSB115 Management
EFB201 Financial Markets
MAB312 Linear Algebra
Mathematics Elective (Level 2)
Business Double Major/Extended Major/Specialisation

Year 3, Semester 2
EFB312 International Finance
Mathematics Elective (Level 2 or 3)
Business Double Major/Extended Major/Specialisation

Year 4, Semester 1
Mathematics Elective (Level 2 or 3)
Mathematics Elective (Level 2 or 3)
Mathematics Elective (Level 2 or 3)
Business Double Major/Extended Major/Specialisation

Year 4, Semester 2
Mathematics Elective (Level 2 or 3)
Mathematics Elective (Level 2 or 3)
Mathematics Elective (Level 2 or 3)
Business Double Major/Extended Major/Specialisation

Business Units

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Business Units

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Course structure - Economics Major (for students with SA in Senior Maths B & C)

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<tr>
<td>BSB110 Accounting</td>
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<tr>
<td>BSB113 Economics</td>
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<td>MAB101 Statistical Data Analysis 1</td>
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<td>MAB111 Mathematical Sciences 1B</td>
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<table>
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<tr>
<th>Year 1, Semester 2</th>
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<tbody>
<tr>
<td>BSB119 Global Business</td>
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<tr>
<td>BSB122 Quantitative Analysis and Finance</td>
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<tr>
<td>EFB102 Economics 2</td>
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<tr>
<th>Year 2, Semester 1</th>
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<tbody>
<tr>
<td>EFB202 Business Cycles and Economic Growth</td>
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<tr>
<td>EFB211 Firms, Markets and Resources</td>
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Mathematics Elective (Level 2)

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<tr>
<td>BSB114 Government, Business and Society</td>
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<td>BSB126 Marketing</td>
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<td>MAB220 Computational Mathematics 1</td>
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<td>MAB313 Mathematics of Finance</td>
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Business Units

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Course structure - Economics Major (for students with SA in Senior Maths B only)

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Extended Major in Banking

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<th>Year 4, Semester 2</th>
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<td>EFB310</td>
<td>Financial Institutions - Control</td>
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<td>MAB316</td>
<td>Mathematics Elective (Level 2)</td>
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<tr>
<td></td>
<td>EFB311</td>
<td>Financial Institutions - Lending</td>
<td></td>
<td>MAB317</td>
<td>Mathematics Elective (Level 2)</td>
</tr>
</tbody>
</table>

Note: Please refer to "Course Updates - List of re-coded and replacement Business units" to check for course structure changes.
Finance Major

EFB200  Applied Regression Analysis
EFB202  Business Cycles and Economic Growth
EFB211  Firms, Markets and Resources
EFB325  Financial Microeconomics

Plus two units from the Financial Economics Extended Major Options list below

EFB308  Finance 3
EFB309  Financial Derivatives
EFB318  Portfolio and Security Analysis
EFB324  Macroeconomics and Global Financial Markets
EFB326  Applied Portfolio Management

Note: Please refer to "Course Updates - List of re-coded and replacement Business units" to check for course structure changes.

Extended Major in Financial Economics (for Economics Major)

EFB200  Applied Regression Analysis
EFB210  Finance 1
EFB324  Macroeconomics and Global Financial Markets
EFB325  Financial Microeconomics

Plus two units from the Financial Economics Extended Major Options list below:

EFB201  Financial Markets
EFB326  Applied Portfolio Management
EFB327  Econometrics of Financial Markets
EFB328  Public Economics and Finance

Note: Please refer to "Course Updates - List of re-coded and replacement Business units" to check for course structure changes.

Extended Major in Funds Management

AYB225  Management Accounting
EFB308  Finance 3
EFB309  Financial Derivatives
EFB318  Portfolio and Security Analysis

Plus two units from the Funds Management Extended Major Options list below:

AYB312  Financial Institutions Law
EFB200  Applied Regression Analysis
EFB310  Financial Institutions - Control
EFB311  Financial Institutions - Lending
EFB326  Applied Portfolio Management

Note: Please refer to "Course Updates - List of re-coded and replacement Business units" to check for course structure changes.

Extended Major in Professional Accounting

AYB232  Law of Business Associations
AYB325  Taxation Law
EFB102  Economics 2
EFB210  Finance 1
AYB311  Financial Accounting Issues
AYB321  Strategic Management Accounting

Note: Please refer to "Course Updates - List of re-coded and replacement Business units" to check for course structure changes.

Course structure - Mathematics Units

Level 2 units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAB311</td>
<td>Advanced Calculus</td>
</tr>
<tr>
<td>MAB312</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MAB313</td>
<td>Mathematics of Finance</td>
</tr>
<tr>
<td>MAB314</td>
<td>Statistical Modelling 2</td>
</tr>
<tr>
<td>MAB315</td>
<td>Operations Research 2</td>
</tr>
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<td>MAB413</td>
<td>Differential Equations</td>
</tr>
<tr>
<td>MAB414</td>
<td>Applied Statistics 2</td>
</tr>
<tr>
<td>MAB420</td>
<td>Computational Mathematics 2</td>
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<tr>
<td>MAB422</td>
<td>Mathematical Modelling</td>
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<tr>
<td>MAB461</td>
<td>Discrete Mathematics</td>
</tr>
<tr>
<td>MAB480</td>
<td>Introduction to Scientific Computation</td>
</tr>
<tr>
<td>MAB481</td>
<td>Visualisation and Data Analysis</td>
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</table>

Level 3 units

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MABS21</td>
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<tr>
<td>MABS22</td>
<td>Computational Mathematics 3</td>
</tr>
<tr>
<td>MABS24</td>
<td>Statistical Inference</td>
</tr>
<tr>
<td>MABS25</td>
<td>Operations Research 3A</td>
</tr>
<tr>
<td>MABS33</td>
<td>Statistical Techniques</td>
</tr>
<tr>
<td>MABS36</td>
<td>Time Series Analysis</td>
</tr>
</tbody>
</table>
MAB613  Partial Differential Equations
MAB623  Financial Mathematics
MAB624  Applied Statistics 3
MAB625  Operations Research 3B
MAB640  Industry Project
MAB681  Advanced Visualisation and Data Analysis
MAB672  Advanced Mathematical Modelling

NOTES:
- MAB311 Advanced Calculus and MAB312 Linear Algebra are mandatory for students who commenced in 2004 onwards. They can be taken in a different semester 1 to that suggested in the programs above.
- For students commencing in 2004 onwards, the units MAB523 Introduction to Quality Management and MAB621 Discrete Mathematics do not contribute to the mandatory 48 credit points minimum from Level 3 Mathematics units. This does not apply for students who commenced prior to 2004.
- MAB681 will not be offered in 2008, but will be offered in Semester 2 2009 and every second year.

Course structure

This course has been discontinued. Currently enrolled students should check with the relevant Faculty for course progression and enrolment advice.

Course Updates - List of re-coded and replacement Business units

Faculty Core units
BSB114  is replaced by BSB124 Working in Business
BSB115  now retitled BSB115 Management
BSB119  now retitled BSB119 Global Business
BSB122  is replaced by BSB123 Data Analysis

Accountancy Core units
AYB121  is now AYB200 Financial Accounting
AYB220  is now AYB340 Company Accounting
AYB301  now retitled AYB301 Audit and Assurance

Advertising Core units
AMB221  is now AMB318 Advertising Copywriting
AMB222  is now AMB319 Media Planning
AMB321  is now AMB339 Advertising Campaigns

Banking and Finance Core units

EBF101  is replaced by EBF222 Quantitative Methods for Economics and Finance
EBF102  now retitled EBF223 Economics 2

Economics Core units
EBF101  is replaced by EBF222 Quantitative Methods for Economics and Finance
EBF102  now retitled EBF223 Economics 2
EBF202  is replaced by EBF330 Intermediate Macroeconomics
EBF211  is replaced by EBF331 Intermediate Microeconomics
EBF314  is replaced by EBF336 International Economics
EBF329  is now EBF338 Contemporary Application of Economic

Electronic Business Core units
BSB212  is replaced by AYB114 Business Technologies
BSB213  is replaced by AYB115 Governance Issues and Fraud
BSB314  is replaced by Forensic and Business Intelligence
ITB233  is now INB312 Enterprise Systems Application
ITB823  is now INB830 Web Sites for E-Commerce
ITB239  is now INB342 Enterprise Data Mining

Human Resource Management Core units
MGB220  now retitled MGB220 Business Research Methods
MGB221  is now MGB339 Performance and Reward

International Business Core units
IBB202  is replaced by EBF240 Finance for International Business
IBB208  IBB208 is no longer offered. Please contact the School of AMPR regarding a replacement unit. (Email: ampradmin@qut.edu.au)
IBB210  is now replaced by AMB210 Importing and Exporting
IBB213  is now AMB336 International Marketing
IBB217  IBB217 is no longer offered. Please contact the School of AMPR regarding a replacement unit. (Email: ampradmin@qut.edu.au)
IBB300  is now AMB369 International Business Strategy
IBB308  is replaced by MGB340 International Business in the Asia-Pacific

Management Core units
MGB310 Sustainability in a Changing Environment was formerly known as MGB212 and MGB334

Marketing Core units
AMB241 is now AMB335 E-Marketing Strategies
AMB341 is now AMB359 Strategic Marketing

Public Relations Core units
AMB260 is replaced by AMB263 Introduction to Public Relations
AMB360 is replaced by AMB373 Corporate Communication
AMB361 is replaced by AMB379 Public Relations Campaigns

Business Law and Tax Extended Major (BLX)
AYB223 replaced by AYB230 Corporations Law
AYB325 is now AYB219 Taxation Law
AYB305 is replaced by AYB205 Law of Business Entities
AYB312 is now AYB232 Financial Institutions

Professional Accounting Extended Major (PAX)
AYB223 is replaced by AYB230 Corporations Law
AYB325 is now AYB219 Taxation Law

Advertising Extended Major (ADX)
AMB230 now retitled AMB230 Digital Promotions
AMB330 now retitled AMB330 Advertising Planning Portfolio

Banking Extended Major (BFX)
AYB312 is now AYB232 Financial Institutions Law
EFB200 is replaced by EFB333 Introductory Econometrics
EFB318 is replaced by EFB335 Investments

Financial Economics Extended Major (FEX) (for Banking & Finance Students)
EFB200 is replaced by EFB333 Introductory Econometrics
EFB202 is replaced by EFB330 Intermediate Macroeconomics
EFB211 is replaced by EFB331 Intermediate Microeconomics
EFB325 is replaced by EFB336 International Economics
EFB318 is replaced by EFB335 Investments
EFB324 is replaced by EFB337 Game Theory and Applications

Financial Economics Extended Major (FEX) (for Economics Students)
EFB200 is replaced by EFB333 Introductory Econometrics
EFB324 is replaced by EFB201 Financial Markets
EFB325 is replaced by EFB337 Game Theory and Applications

Funds Management Extended Major (FDX)
EFB318 is replaced by EFB335 Investments
AYB312 is now AYB232 Financial Institutions Law
EFB200 is replaced by EFB333 Introductory Econometrics

Human Resource Management Extended Major (HRX)
MGB315 is now MGB370 Personal & Professional Development
IBB205 is now MGB225 Intercultural Communication and Negotiation Skills
MGB310 Sustainability in a Changing Environment was formerly known as MGB212 and MGB334

International Business Extended Major (IBX)
IBB205 is now MGB225 Intercultural Communication and Negotiation Skills
IBB303 is now AMB303 International Logistics
AMB230 now retitled AMB230 Digital Promotions
IBB312 is replaced by AMB300 Independent Project 1

Management Extended Major (MNX)
IBB205 is now MGB225 Intercultural Communication and Negotiation Skills
MGB218 is now MGB324 Managing Business Growth
MGB315 is now MGB370 Personal & Professional Development
IBB210 is replaced by AMB210 Import and Exporting
IBB303 is now AMB303 International Logistics

Marketing Extended Major (MKX)
AMB251 now retitled AMB251 Innovation and Brand Management
AMB260 is replaced by AMB263 Introduction to Public Relations
AMB351 is now AMB209 Tourism Marketing
AMB352 is replaced by AMB252 Business Decision Making
AMB354 is now AMB208 Events Marketing
IBB213 is now AMB336 International Marketing
IBB303 is now AMB303 International Logistics

Public Relations Extended Major (PRX)
AMB370 is replaced by AMB374 Global Public Relations Cases
AMB371 is replaced by AMB375 Public Relations Management

Business Law and Tax Specialisation (BLS)
AYB223 is replaced by AYB230 Corporations Law
AYB325 is now AYB219 Taxation Law
AYB305 is now AYB205 Company Law & Practice
AYB312 is now AYB232 Financial Institutions Law
BSB213 is now AYB115 Governance Issues in E-Business

Electronic Business Specialisation (EUS)
BSB212 is replaced by AYB114 Business Technologies
BSB213 is replaced by AYB115 Governance Issues and Fraud
BSB314 is replaced by AYB341 Forensic and Business Intelligence
ITB233 is now INB312 Enterprise Systems Applications
ITB823 is now INB308 Web Sites for E-Commerce
ITB239 is now INB342 Enterprise Data Mining

Financial Economics Specialisation (FES)
EFB102 is replaced by EFB223 Economics 2
EFB202 is replaced by EFB330 Intermediate Macroeconomics
EFB211 is replaced by EFB331 Intermediate Microeconomics
EFB329 is now 338 Contemporary Applications of Economics
EFB314 is replaced by EB336 International Economics
EFB324 is replaced by EFB201 Financial Markets
EFB325 is replaced by EFB337 Game Theory and Applications

Integrated Marketing Communication Specialisation (IMS)
AMB260 is replaced by AMB263 Introduction to Public Relations
AMB230 now retitled AMB230 Digital Promotions
AMB354 is now AMB208 Events Marketing

International Logistics Specialisation (ILG)
IBB213 is now AMB336 International Marketing
IBB303 is replaced by AMB303 International Logistics
BSB314 is replaced by AYB341 Forensic and Business Intelligence
IBB210 is replaced by AMB210 Importing and Exporting
EFB213 is replaced by AMB252 Business Decision Making (offered Sem 2); OR MGB335 Project Management (offered Sem 1 & 2)

Sales Specialisation (SALES)
AMB230 now retitled AMB230 Digital Promotion
AMB250 is replaced by MGB225 Intercultural Communication and Negotiation Skills

International Exchange Specilisation (IEX)
IBB205 is now MGB225 Intercultural Communication and Negotiation Skills

Potential Careers:
Account Executive, Accountant, Actuary, Banker, Banking and Finance Professional, Business Analyst, Certified Practicing Accountant, Computer Game Programmer, Corporate Secretary, Economist, Financial Advisor/Analyst, Financial Project Manager, Funds Manager, Government Officer, Investment Manager, Market Research Manager, Mathematician, Quantitative Analyst, Risk Manager, Statistician, Stockbroker.

UNIT SYNOPSISES

AYB121 FINANCIAL ACCOUNTING
Financial Accounting examines of the accounting concepts and procedures relevant to both partnership and corporate structures within the context of the accounting profession's conceptual framework and the relevant accounting standards and Corporations Law requirements. Topics include: the formation, operation, financial reporting and disclosure for both partnerships and companies; accounting for leases; and the professional role of accountants. The emphasis is on the effect of the different forms of ownership on the financial statements.
Prerequisite(s): BSB110 or CTB110
Contact hours: 3 per week
Campus: Gardens Point

AYB220 COMPANY ACCOUNTING
This unit includes: the preparation of consolidated financial statements; an overview of the statutory requirements that dictate the format and content of published financial reports of companies; the requirements of the Corporations Act 2001 and the major disclosure orientated accounting standards; accounting for income tax; accounting for the acquisition of assets (including entities); accounting for
investments in associates; accounting for foreign currency transactions arising from international trading and financing; and the translation of the results of foreign operations.

**Prerequisite(s):** AYB121  
**Contact hours:** 3.5 per week  
**Campus:** Gardens Point

### AYB221 COMPUTERISED ACCOUNTING SYSTEMS

This unit provides an examination of the concepts, processes and issues relevant to computerised accounting systems including: accounting information systems; internal controls; design and development of computerised accounting systems including general ledger and reporting cycle, revenue cycle, expenditure cycle and payroll cycle; computer fraud, security and crime; accessing accounting information; and accounting in an electronic environment. Practical application of these concepts is enhanced by the use of accounting software such as MYOB, spreadsheet software such as Excel, database software such as Access, and interactive multimedia software such as Accounting Information Systems Cycles.

**Prerequisites:** BSB110 or CTB110  
**Antirequisites:** AYN443  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1 and 2010 SEM-2

### AYB223 LAW OF BUSINESS ASSOCIATIONS

The unit is intended to equip students with a basic understanding and knowledge relevant to the environment of legal entities, particularly corporations. It also seeks to provide students with sufficient basic understanding of the legal structure of business associations to enable them to recognise the appropriate structure for particular commercial situations.

**Prerequisite(s):** BSB111 or CTB111  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Incompatible with:** AYB205

### AYB225 MANAGEMENT ACCOUNTING

This unit introduces students to accounting systems and techniques that provide management at all levels with information for use in planning, controlling and decision making. This can be contrasted with financial accounting, which provides summary financial information principally for external users (ie shareholders, creditors, banks, etc). Emphasis is placed on developing a range of accounting systems (in particular product costing) which may be used in manufacturing firms, although the principles and concepts used to develop such systems can be adapted to service organisations.

**Prerequisites:** BSB110 or CTB110  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1 and 2010 SEM-2

### AYB301 AUDIT AND ASSURANCE

This unit enables students to comprehend the key concepts of auditing as a discipline, to demonstrate the relationship between auditing and the systems of accountability and to demonstrate the differences between manual and EDP audit processes. The unit builds on the knowledge of accounting and accounting standards acquired in prior units by enabling students to understand in detail the audit process (including professional auditing standards and techniques) which leads to the auditor providing an opinion on the financial reports of various types of entities. Ethics and auditor’s liability are also covered.

**Prerequisites:** AYB221, and AYB340 or AYB220  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1, 2010 SEM-2 and 2010 SUM

### AYB311 FINANCIAL ACCOUNTING ISSUES

This unit introduces students to the nature of accounting theory and integrates theory with practice to assist in the understanding of major Australian and International accounting issues. The following topics are addressed: positive and normative theories of accounting; the external reporting framework including international harmonisation and the conceptual framework; definition, recognition and measurement of assets, liabilities, equity, revenues and expenses; asset revaluations; intangibles; leases and employee entitlements. Accounting in specific industries such as construction, extractive industries and superannuation funds is also examined. This unit complies with the new international accounting standards. Contracting theory is used.

**Prerequisites:** AYB340 or AYB220  
**Credit points:** 12  
**Contact hours:** 3.5 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1 and 2010 SEM-2

### AYB312 FINANCIAL INSTITUTIONS LAW

This unit deals with the regulation of banks and non-bank financial institutions, the financial institutions' scheme, the banker-customer relationship, laws relating to cheques and other negotiable instruments, negligent advice by financial institutions and other possible grounds of liability in the dealings of financial institutions with customers.

**Prerequisite(s):** BSB111 or CTB111  
**Contact hours:** 3 per week  
**Campus:** Gardens Point

### AYB321 STRATEGIC MANAGEMENT ACCOUNTING

Strategic management accounting develops a theory of organisations that provides an understanding of the information requirements of management to facilitate the strategic planning, decision-making and control necessary for the achievement of their objectives. Topics include: developing effective performance-evaluation systems and compensation plans; examining how managers can design organisations to motivate individuals to make choices that increase firm value; managing transfer-pricing disputes...
BSB113 ECONOMICS
This unit introduces students to the key economic concepts and their practical applications. It comprises twelve topics each focusing on a current economic issue. Microeconomic topics include demand and supply, elasticity, production and cost theory and market structure. Macroeconomic topics include measuring GDP, inflation and unemployment, money and banking, and fiscal and monetary policy.

Antirequisites: BSD113  
Equivalents: CTB113  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point and Caboolture  
Teaching period: 2010 SEM-1 and 2010 SEM-2

BSB114 GOVERNMENT, BUSINESS AND SOCIETY
This unit provides a basic grounding in the principles, institutions and functions of government and their interactions with business and society. Its principal focus is the structure and key features of Australia's constitutional and government framework including the judicial and administrative processes, especially as they affect business.

Students develop a comparative appreciation of the principles, institutional arrangements and practices of contemporary government in a global context. This includes consideration of law-making and policy processes and the impact of the changing national and international environment.

Contact hours: 3 per week  
Campus: Gardens Point and Caboolture  
Incompatible with: HUB694, HUB682, BSD114, CTB114

BSB115 MANAGEMENT
The unit provides an introduction to the theories and practice of management and organisations. Emphasis is on the conceptual and people skills that are needed in all areas of management and in all areas of organisational life. The unit acknowledges that organisations exist in an increasingly international environment where the emphasis will be on knowledge, the ability to learn, to change and to innovate.

Organisations are viewed from individual, group, corporate and external environmental perspectives.

Antirequisites: BSD115  
Equivalents: CTB115  
Credit points: 12  
Contact hours: 3 per week  
Campus: Gardens Point and Caboolture  
Teaching period: 2010 SEM-1, 2010 SEM-2 and 2010 SUM

BSB119 GLOBAL BUSINESS
This unit examines the drivers of globalisation and the diversity of country markets at an introductory level. It develops the skills and understanding to identify and respond to the opportunities, challenges and risks of conducting business across politically, economically and culturally diverse environments. An authentic country feasibility study is undertaken to help identify where a firm can find opportunities both in terms of actual and potential
markets and the location for value-adding activities. The unit aims for students to have developed a comprehension of the nature and role of globalisation and the drivers of international business, a knowledge of the competitive forces and challenges confronting all business as a consequence of globalisation processes and an awareness of the additional knowledge and skills required of management to operate business internationally across a diversity of environments.

**Antirequisites:** BSB116, BSB112  
**Equivalents:** CTB119

**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point and Caboolture  
**Teaching period:** 2010 SEM-1, 2010 SEM-2 and 2010 SUM

**BSB122 QUANTITATIVE ANALYSIS AND FINANCE**

To maintain the competitiveness of, and add value to, an organisation, today’s managers have to make critical business and financial decisions. This unit is a preliminary study of the techniques for analysing business information, and will provide students with a framework for understanding the fundamentals of business and financial decision making. Topics include the following: the basic techniques of organising and analysing data; the application of probability and probability distributions; understanding a firm’s investing, financing and dividend decisions; and the three main ideas underpinning financial decisions (time value of money, diversification and arbitrage).

**Contact hours:** 3 per week  
**Campus:** Gardens Point and Caboolture  
**Incompatible with:** BSB117, CTB122

**BSB126 MARKETING**

This introductory subject examines the role and importance of marketing to the contemporary organisation. Emphasis is placed on understanding the basic principles and practices of marketing such as the marketing concept, market segmentation, management information systems and consumer behaviour. The unit explores the various elements of the marketing mix, with special reference to product, price, distribution, and promotion, including advertising and public relations. By way of introduction only, key issues relating to services marketing, e-marketing and strategic marketing are also canvassed.

**Antirequisites:** BSB116  
**Equivalents:** CTB126

**Credit points:** 12  
**Contact hours:** 4 per week  
**Campus:** Gardens Point and Caboolture  
**Teaching period:** 2010 SEM-1, 2010 SEM-2 and 2010 SUM

**EFB102 ECONOMICS 2**

Consumer behaviour, the role of the government in market intervention, allocative efficiency and market structure are some of the fundamental issues in microeconomics addressed in this unit. Business cycles and the related issue of macroeconomic stabilisation policy are analysed and explained within the Australian context. The significance of the international economy is described through a discussion of foreign exchange markets, the Australian dollar and the terms of trade.

**Prerequisite(s):** BSB113 or CTB113  
**Contact hours:** 3 per week  
**Campus:** Gardens Point

**EFB200 APPLIED REGRESSION ANALYSIS**

This unit expands on the basic multiple regression model introduced in EFB101, by examining the practical problems encountered in using the single equation econometric model. In particular, the major problems encountered using real data, such as multicolinearity, serial correlation in time series data and heteroskedasticity in the case of cross-sectional data, specification error, and alternative functional form issues will be illustrated in the context of published Australian data. The unit includes extensive use of a commonly used computer package to allow the practical application of the various techniques.

**Prerequisite(s):** EFB101 or MAB101  
**Contact hours:** 3 per week  
**Campus:** Gardens Point

**EFB201 FINANCIAL MARKETS**

This unit introduces students to the institutional structure of global financial markets, and thereby complements the understanding of theoretical finance gained in either BSB122 or EFB210. Topics covered include the functions of financial markets, the banking and payments system, financial system deregulation, non-bank financial institutions, stock exchange operations, debt markets, foreign exchange markets and markets for financial derivatives.

**Prerequisite(s):** BSB113 or CTB113  
**Credit points:** 12  
**Contact hours:** 3 per week  
**Campus:** Gardens Point  
**Teaching period:** 2010 SEM-1 and 2010 SEM-2

**EFB202 BUSINESS CYCLES AND ECONOMIC GROWTH**

This unit develops an analytical framework in order to evaluate the macroeconomic performance of the Australian economy and the policy actions taken by government. Key issues addressed include business cycle stabilisation, unemployment, inflation, economic growth, the balance of payments, the Commonwealth budget and national saving.

**Prerequisite(s):** EFB102  
**Contact hours:** 3 per week  
**Campus:** Gardens Point

**EFB210 FINANCE 1**

This unit covers the following topics: an introduction to the financial institutional framework; an introduction to debt and equity instruments; financial mathematics applied to the pricing of debt and equity securities; a firm’s investment decision including Net Present Value (NPV) and Internal Rate of Return (IRR); introduction to risk and uncertainty using the Capital Asset Pricing Model (CAPM) and Weighted Average Cost of Capital (WACC) concept and risk management.

**Prerequisite(s):** BSB123 or BSB122 or MAB126 or (BSB110
This unit extends students’ knowledge of financial derivatives as obtained in Finance 2. Topics include: advanced option pricing models; advanced option trading strategies; exotic options; forward and futures pricing models; hedging commodities and equities by using futures; forward rate agreement and interest rate swaps; financial risk management issues.

Prerequisites: EFB206 Credit points: 12 Contact hours: 3 per week Campus: Gardens Point Teaching period: 2010 SEM-1, 2010 SEM-2 and 2010 SUM

EFB307 FINANCE 2
This unit includes the following topics: the financing decision - capital structure, debt versus equity, lease versus debt, term structure versus default structure of interest rates; the dividend decision - dividends versus capital gains, franked versus unfranked income; firm valuation; free cash flow model; evaluation of takeovers; Risk and Return - diversification, the CAPM model, its practical application and its relationship to efficient market hypothesis; introduction to forwards, futures, options, warrants, convertibles and risk management using financial derivatives.

Prerequisites: EFB210 Credit points: 12 Contact hours: 3 per week Campus: Gardens Point Teaching period: 2010 SEM-1 and 2010 SEM-2

EFB308 FINANCE 3
This unit includes the following topics: a study of contemporary finance research; CAPM; beta estimation; valuation theory; market efficiency; value at risk; use of finance research tools; anomalies and extension of finance theories. Students are required to complete a research project combining theory and practice. This unit covers many topical areas in contemporary finance research. These include, but are not limited to: asset pricing; beta estimation; market efficiency; value at risk; mutual fund performance; volatility modelling; and the term structure of interest rates. Students are required to complete a research project combining theory and practice.

Prerequisites: EFB307 Credit points: 12 Contact hours: 3 per week Campus: Gardens Point Teaching period: 2010 SEM-2

EFB309 FINANCIAL DERIVATIVES
This unit extends students’ knowledge of financial derivatives as obtained in Finance 2. Topics include: advanced option pricing models; advanced option trading strategies; exotic options; forward and futures pricing models; hedging commodities and equities by using futures; forward rate agreement and interest rate swaps; financial risk management issues.

Prerequisites: EFB206 Credit points: 12 Contact hours: 3 per week Campus: Gardens Point Teaching period: 2010 SEM-1, 2010 SEM-2 and 2010 SUM

EFB211 FIRMS, MARKETS AND RESOURCES
This unit is concerned with the economic analysis of the decisions and actions of consumers, firms, and governments in modern economies. It develops student understanding of the role of economics that is expressly concerned with the operations of, and inter-relationships between, the individual units of the economy. The unit is designed, not to foster both clear thinking about the interplay between government, private firms, and consumers, but also to develop the student’s ability to apply microeconomic concepts to economic problems that the student has not previously encountered.

Prerequisite(s): EFB102 Contact hours: 3 per week Campus: Gardens Point

EFB307 FINANCE 2
This unit includes the following topics: the financing decision - capital structure, debt versus equity, lease versus debt, term structure versus default structure of interest rates; the dividend decision - dividends versus capital gains, franked versus unfranked income; firm valuation; free cash flow model; evaluation of takeovers; Risk and Return - diversification, the CAPM model, its practical application and its relationship to efficient market hypothesis; introduction to forwards, futures, options, warrants, convertibles and risk management using financial derivatives.

Prerequisites: EFB210 Credit points: 12 Contact hours: 3 per week Campus: Gardens Point Teaching period: 2010 SEM-1 and 2010 SEM-2

EFB308 FINANCE 3
This unit includes the following topics: a study of contemporary finance research; CAPM; beta estimation; valuation theory; market efficiency; value at risk; use of finance research tools; anomalies and extension of finance theories. Students are required to complete a research project combining theory and practice. This unit covers many topical areas in contemporary finance research. These include, but are not limited to: asset pricing; beta estimation; market efficiency; value at risk; mutual fund performance; volatility modelling; and the term structure of interest rates. Students are required to complete a research project combining theory and practice.

Prerequisites: EFB307 Credit points: 12 Contact hours: 3 per week Campus: Gardens Point Teaching period: 2010 SEM-2
EFB314 INTERNATIONAL TRADE AND ECONOMIC COMPETITIVENESS
The unit analyses the increasing globalisation of world trade and investment, and develops an analytical framework to assess the impact of these flows on the Australian economy, its businesses, people and policy makers. It examines the patterns of trade and capital flow.
Prerequisite(s): EFB211 & EFB202  Contact hours: 3 per week  Campus: Gardens Point  Incompatible with: EFB212

EFB318 PORTFOLIO AND SECURITY ANALYSIS
This unit addresses the following topics: management of investment portfolios; diversification; performance management; risk management; advanced asset pricing models; equity valuation strategies and fixed interest risk analysis.
Prerequisite(s): EFB307  Contact hours: 3 per week  Campus: Gardens Point

EFB324 MACROECONOMICS AND GLOBAL FINANCIAL MARKETS
The unit provides an in-depth understanding of the interplay between macroeconomic policies and global financial markets. Macroeconomic frameworks adopted in this unit are practically oriented and much of the material with which they deal is drawn from relevant events of recent decades. The unit discusses various analytical tools and policy approaches to the macroeconomy as they affect both developed and developing countries. Particular emphasis is given to how a good knowledge of macroeconomics helps in understanding international financial market developments and also, to some extent, how fluctuations in such markets can have serious implications for macroeconomic conditions and economic policy.
Prerequisite(s): EFB202  Contact hours: 3 per week  Campus: Gardens Point

EFB325 FINANCIAL MICROECONOMICS
This unit addresses the theoretical microeconomic foundations of financial economics, focussing on how individuals and firms deal with uncertainty and situations involving strategic interactions. The theoretical concepts are illustrated with application from both the private and public sector. Contents include game theory and its economic applications, expected utility theory, risk analysis, intertemporal preferences, cost of capital, demand for capital, and asymmetric information.
Prerequisite(s): EFB211  Contact hours: 3 per week  Campus: Gardens Point

EFB326 APPLIED PORTFOLIO MANAGEMENT
This unit introduces the student to the treasury environment in which financial institutions operate. The key to the unit is the raising of funds and the management of interest rate risk. This unique hands-on unit allows students to develop these skills by trading in a simulated environment of international economic uncertainty. Students have trading parameters within which they should operate. Students must make decisions concerning source of funds, term and duration, interest rate re-set, and risk management with derivatives. Trading will be conducted over a simulated four quarter year.
Prerequisites: EFB210  Credit points: 12  Contact hours: 3 per week  Campus: Gardens Point

EFB327 ECONOMETRICS OF FINANCIAL MARKETS
The Econometrics of Financial Markets provides a comprehensive introduction to models of economic behaviour in financial markets, using the tools of discrete time-series analysis. This unit aims to give grounding in the necessary econometric methods before demonstrating how competing theoretical models may be tested. It provides illustrative empirical results from the stock, bond and foreign exchange markets.
Prerequisite(s): EFB200  Contact hours: 3 per week  Campus: Gardens Point

EFB328 PUBLIC ECONOMICS AND FINANCE
The major topics/areas covered in this unit include principles underlying government provision, distribution and finance as responses to market failure, externalities and government intervention in the presence of externalities and economics of pollution control Cost benefit analysis and the environment are also dealt with under this section. In the next section we provide an introduction to taxation and then we discuss tax compliance and reform of the tax system. Under education the unit will cover the following: Market failure and government failure in education, financing of education and education outcomes, consumer choice in education and economic analysis of current directions in education reform. Under health the unit will cover topics such as demand for health, health sector targets and instruments of public policy, health care financing and outputs in Australia and problems of information in the health sector.
Prerequisite(s): EFB211  Contact hours: 3 per week  Campus: Gardens Point

EFB329 CONTEMPORARY APPLICATIONS OF ECONOMICS THEORY
This capstone unit reinforces and extends the economic theory introduced to students in the major, and applies it to a number of topical issues that lend themselves to critical analysis using economic principles. Both macroeconomic and microeconomic theories are used with the emphasis placed on usefulness of the theory in development of a framework which assists with decision-making and informs critiques of public policy. Some of the perspectives taken in
studying these topics will include: their impacts on efficiency and on specific economic agents and institutions; the role, if any, of government in their resolution; and the economic instruments available to analysts by which to frame their detailed consideration.

**Prerequisite(s):** 192 credit points of study, including EFB202 and EFB211    Contact hours: 3 per week    Campus: Gardens Point    Incompatible with: EFB323

MAB100 MATHEMATICAL SCIENCES 1A

To enrol you should have (1) at least Sound Achievement in 4 semesters of Mathematics B, or (2) a grade of least 4 in MAB105, or (3) the equivalent. This unit will reinforce the notion of a function with particular emphasis on polynomial, trigonometric, exponential and logarithmic functions including arithmetic and geometric progressions and the binomial theorem. Calculus will be reviewed and expanded with an emphasis on integration and on integration techniques and applications. Vectors and matrices will be introduced with vectors interpreted geometrically and algebraically and matrices as representations of linear systems, with applications. If time permits, complex numbers will be introduced. This unit is incompatible with HA in Senior Mathematics C.

**Prerequisite(s):** MAB105 or SA in Senior Maths B (or equivalent)    Credit points: 12    Contact hours: 4 per week    Campus: Gardens Point    Teaching period: 2009 SEM-1, 2009 SEM-2 and 2009 SUM    Incompatible with: Prior pass in MAB180, MAB131, HA in Senior Maths C

MAB101 STATISTICAL DATA ANALYSIS 1

Experiments, observational studies, sampling, and polls; data and variables; framework for describing and manipulating probability; independence; Binomial and Normal distributions; population parameters and sample statistics; concepts of estimation and inference; standard error; confidence intervals for means and proportions; tests of hypotheses on means and proportions (one sample and two independent samples); inference using tables of counts; modelling relationships using regression analysis; model diagnosis; use of statistical software.

**Antirequisites:** BSB123, EFB101, MAB141, MAN101

**Assumed knowledge:** Grade of at least Sound Achievement in Senior Mathematics B (or equivalent) or MAB105 is assumed knowledge.    Credit points: 12    Contact hours: 4 per week    Campus: Gardens Point    Teaching period: 2010 SUM-2, 2010 SEM-1 and 2010 SEM-2

MAB111 MATHEMATICAL SCIENCES 1B

Limits and continuity, including limits of rational functions, functions involving radicals, trigonometric functions; L'Hopital's Rule; differentiation techniques - parametric, logarithmic; inverse functions and their derivatives; partial derivatives. Introduction to differential equations and mathematical modelling. Riemann sums, fundamental theorems of integral calculus; applications including solids of revolution and first-order-separable differential equations. Taylor series, Fourier series and applications. Students must have completed four semesters of Senior Mathematics C with an exit achievement of Sound Achievement, or have passed MAB100 (or equivalent).

**Assumed knowledge:** Grade of at least Sound Achievement in Senior Mathematics C (or equivalent) or MAB100 is assumed knowledge.    Credit points: 12    Contact hours: 4 per week    Campus: Gardens Point

MAB112 MATHEMATICAL SCIENCES 1C

This unit includes the following: introduction to linear algebra including vectors, matrices and linear systems; the real and complex number systems; first and second order differential equations. Students must have completed four semesters of Senior Mathematics C with an exit level of Sound Achievement, or have passed MAB100 (or equivalent).

**Corequisites:** MAB111    Credit points: 12    Contact hours: 4 per week    Campus: Gardens Point

MAB210 STATISTICAL MODELLING 1

This unit includes: probability; independence; system reliability; using conditional probability in modelling; Bayes; introductory Markov chains; random variables and distributions; special distributional models; Bernoulli process; Poisson process; exponential; introductory queuing processes; expected values and moments; goodness-of-fit tests; measures of dependence; introductory bivariate and correlation properties; conditioning arguments.

**Assumed knowledge:** Grade of Sound Achievement in Senior Mathematics C (or equivalent) or MAB120 is assumed knowledge. Students are advised to enrol in either MAB121 or MAB122 in the same semester if not previously completed.    Credit points: 12    Contact hours: 4 per week    Campus: Gardens Point    Teaching period: 2010 SEM-1 and 2010 SEM-2

MAB220 COMPUTATIONAL MATHEMATICS 1

This unit includes: sources of error; computer arithmetic; solution of nonlinear equations in one variable; solution of systems of linear equations; interpolation; finite differences; numerical differentiation and integration; solution of first order linear differential equations; MATLAB programming. Students without an exit level of Sound Achievement in four semesters of Senior Mathematics C need to be concurrently enrolled in MAB100 if not completed earlier.

**Assumed knowledge:** Grade of at least Sound Achievement in Senior Mathematics B (or equivalent) or MAB105 and corequisite MAB120 or MAB125 or MAB100 or MAB180 if you don't have Senior Mathematics C is assumed knowledge.    Credit points: 12    Contact hours: 4 per week    Campus: Gardens Point    Teaching period:
2010 SEM-1 and 2010 SEM-2

MAB311 ADVANCED CALCULUS
This unit includes the following: polar coordinates; parametric equations; conic sections; quadric surfaces; vector-valued functions; Fourier series; functions of several variables; graphs; partial derivatives; total derivatives; extrema; Lagrange multipliers; Taylor series for multivariable functions; double and triple integrals; Green's theorems; line and surface integrals; divergence theorem; Stoke's theorem; applications.
Prerequisites: (MAB111 or MAB121) and (MAB112 or MAB122) Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-1

MAB312 LINEAR ALGEBRA
This unit covers the following broad topics from linear algebra: matrix analysis; eigenvalues and eigenvectors; vector spaces; inner product spaces.
Prerequisites: (MAB111 or MAB121) and (MAB112 or MAB122) Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-1

MAB313 MATHEMATICS OF FINANCE
This unit includes: interest rates; solution of problems in compound interest; applications of annuities; valuation of securities; quantitative techniques in business and finance. Students need to concurrently enrol in MAB111 unless already completed.
Prerequisites: MAB111 or MAB121 Antirequisites: MAN313 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-2

MAB314 STATISTICAL MODELLING 2
This unit includes: models for stochastic processes and statistical methods, which have applications in engineering, information technology, finance, and physical and life sciences. Markov chains; random walks; branching processes; queueing processes; long-term behaviour of processes; use of generating functions; bivariate and conditional distributions; transformations of random variables; beta and gamma distributions; mixture distributions; order statistics, minimum and maximum.
Prerequisites: MAB112 and MAB210 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-1

MAB315 OPERATIONS RESEARCH 2
This unit introduces the essential features of operations research methods. It develops a number of basic mathematical techniques to solve generic problems and the theoretical foundations of these techniques. Students should develop the ability to apply various operations research methods, algorithms and techniques in the solution of practical problems. Students will also look at the applications of operations research techniques to real-world problems.
Prerequisites: MAB210 and (MAB112 or MAB122) Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-1

MAB413 DIFFERENTIAL EQUATIONS
This unit includes: linear and nonlinear differential equations; series methods; Laplace transform; transforms of derivatives and integrals; systems of differential equations; basic theory on linear systems; solution of linear systems with constant coefficients; matrix methods; phase plane analysis.
Prerequisites: MAB311 or MAB312 Antirequisites: MAN413 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-2

MAB414 APPLIED STATISTICS 2
This unit includes: Simple linear regression (revision), multiple linear regression, making inferences from regressions, choosing a model, checking model assumptions, general linear models - analysis of covariance, ANOVA revisited, designing experiments, issues in designing experiments, analysing experimental results, further experimental designs, assumptions, and how to cope if they aren't met, simulations.
Prerequisites: MAB101 and MAB111 Assumed knowledge: MAB112 is recommended prior study Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-2

MAB420 COMPUTATIONAL MATHEMATICS 2
This unit includes: direct methods for systems of linear equations; solution methods for special matrix systems (banded matrix systems, block-banded matrix systems, data structures and algorithms for storing and manipulating sparse matrices, reordering schemes); vector and matrix norms (basic theory and definitions, error bounds for direct methods, condition numbers); iterative methods for systems of linear equations (Jacobi, Gauss-Siedel, Successive Over-Relaxation, conjugate gradient); iterative methods for the eigenvalue problem.
Prerequisites: MAB220 and MAB312 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-2

MAB422 MATHEMATICAL MODELLING
This unit includes models developed with the "real world" description. These models are taken from the areas of cancer research, population growth and engineering. Emphasis is on mathematical modelling and not on the development of new mathematical content.
Prerequisites: MAB121 Antirequisites: MAN422 Assumed knowledge: MAB220 is recommended for prior/concurrent study for exposure to MATLAB Credit
MAB461 DISCRETE MATHEMATICS
This unit has three basic components. They are combinatorics, abstract algebra and number theory. Combinatorics, which is about 60% of the unit, will largely consist of enumeration techniques in various settings. Abstract algebra (~20%) will advance the student’s knowledge of groups, rings and fields to include additive groups, multiplicative groups; polynomial rings, finite fields, isomorphisms, and homomorphisms. Number theory (~20%) will include methods of proof including induction and contradiction, modular arithmetic and congruence, gcd/lcm and theorems involving these, fundamental theorem of arithmetic, Fermat’s theorems, Euler’s theorem.
Prerequisites: MAB112 or MAB122 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-2

MAB480 INTRODUCTION TO SCIENTIFIC COMPUTATION
This unit teaches students how to implement a mathematical algorithm in a modern scientific computing environment (e.g., Matlab). A case-study approach is used with an emphasis on writing efficient code. Also an overview of other software packages used in mathematics will be given.
Prerequisite(s): MAB112 or MAB132 or MAB182 (Recommended: MAB210 or MAB220) Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2009 SEM-2 Incompatible with: MAB380, ITB849

MAB481 VISUALISATION AND DATA ANALYSIS
This unit covers; history and evolution of data visualisation, definition of data visualisation, impact of data visualisation; fundamentals of computer graphics and modern day visualisation environments; visualisation of 2-D and 3-D data; general visualisation techniques including filtering; colour map transformations; contouring; height fields; coloured height fields; interpolation; Delauney triangulation; iso-surfaces; volume visualisation; probing; slicing; streamlines; streamlines and texture mapping; visualisation of multi-dimensional data; other data types such as finite element, vector, molecular and scatter data. Not offered after 2009.
Prerequisite(s): MAB101, MAB111, MAB480 or ITB003 (Highly Recommended: MAB112) Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2009 SEM-1

MAB521 APPLIED MATHEMATICS 3
This unit includes: partial differential equations such as the wave, heat and Laplace equations; special functions (gamma, delta, Bessel and error functions, Legendre polynomials); vector analysis and applications (vector algebra, vector calculus, fields, grad, div, curl, line and surface integrals, divergence theorem, Stokes’ theorem, applications); functions of a complex variable (analytic functions, contour integrals, Laurent series, residues).
Prerequisites: MAB311 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-1

MAB522 COMPUTATIONAL MATHEMATICS 3
This unit includes: deriving the basic equations that describe fluid motion; the finite volume method for solving PDEs (application to the generalised diffusion equation, cell-centred and vertex-centred schemes, handling of boundary and initial conditions); solution of systems of nonlinear equations (Newton’s method, Inexact Newton methods, Globally convergent methods).
Prerequisites: MAB311 and MAB420 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-1

MAB524 STATISTICAL INFECTION
This unit includes: maximum likelihood estimation, confidence intervals and hypothesis tests, introduction to Bayesian inference, prior and posterior distributions, Bayesian inference for binomial data, Poisson count data given. Problems will involve the use of software packages. Use of software Matlab and R.
Prerequisites: MAB314 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-1

MAB525 OPERATIONS RESEARCH 3A
This unit develops problem-solving skills and sharpens analytical skills. This unit introduces the technical issues involved in applying operations research principles, methods and algorithms in the solution of real-world problems.
Prerequisites: MAB315 Credit points: 12 Contact hours: 4 per week Campus: Gardens Point Teaching period: 2010 SEM-1

MAB533 STATISTICAL TECHNIQUES
This unit builds on your knowledge and skills of statistical techniques and aims to provide you with an understanding and a working knowledge of some more specialised statistical techniques and their applications. Topics covered include quality management concepts and tools for statistical process control, modelling and analysis of reliability (for inanimate objects) and survival (for living entities), and multivariate techniques such as principal components analysis, discriminant analysis and cluster analysis.
Prerequisites: MAB210 and MAB414  Antirequisites: MAB523  Credit points: 12  Contact hours: 4 per week  
Campus: Gardens Point  Teaching period: 2010 SEM-1

MAB536 TIME SERIES ANALYSIS  
This unit includes the following: fundamentals of time series analysis; time series models; nonstationary processes; seasonal ARIMA models; vector autoregression; long-range dependence and fractional ARIMA models; co-integration of nonstationary processes.  
Prerequisites: MAB314 and MAB414  Antirequisites: MAN536, MAB526  Credit points: 12  Contact hours: 4 per week  
Campus: Gardens Point  Teaching period: 2010 SEM-2

MAB613 PARTIAL DIFFERENTIAL EQUATIONS  
This unit includes the following: derivation of certain partial differential equations; solution of partial differential equations by separation of variables, Laplace and Fourier transforms; Sturm-Liouville systems; special functions; Green’s functions.  
Prerequisites: MAB311 and MAB413  Antirequisites: MAN613  Credit points: 12  Contact hours: 4 per week  
Campus: Gardens Point  Teaching period: 2010 SEM-2

MAB623 FINANCIAL MATHEMATICS  
This unit includes the following: quantitative techniques in business, economics and finance; theory and structure of interest rates; general accumulation and discounting functions; force of interest; discounting including Modern Portfolio theory and extension; varying interest; general annuities; varying annuities; continuous varying annuities; mathematical analysis of financial transactions in money and capital markets; life annuities and life assurances; the life table; basic life table functions; life annuities and assurances; policy values; paid up policy values; changes to policies; use of life table; superannuation.  
Prerequisites: MAB313 and MAB311  Credit points: 12  Contact hours: 4 per week  
Campus: Gardens Point  Teaching period: 2010 SEM-2

MAB624 APPLIED STATISTICS 3  
This unit includes the following: design of experiments for factorial investigations (two and three-level factors, Taguchi’s approach, fractions and blocking, response surfaces); general linear model; regression graphics; multi-stratum designs and analysis; repeated measures designs and analysis; linear-logistic and log-linear models; use of statistical software.  
Prerequisites: MAB414  Antirequisites: MAN624  Credit points: 12  Contact hours: 4 per week  
Campus: Gardens Point  Teaching period: 2010 SEM-2

MAB625 OPERATIONS RESEARCH 3B

This unit includes: phases of an operations research study; decision analysis; queuing theory; simulation; implementation in operations research; heuristic techniques.  
Prerequisites: MAB315  Credit points: 12  Contact hours: 4 per week  
Campus: Gardens Point  Teaching period: 2010 SEM-2

MAB640 INDUSTRY PROJECT  
For this unit, you will usually work in industry part-time. You will be assisted to develop a suitable plan to manage the project. You are expected to record progress and subsequently develop an accurate report.  
Other requisites: Unit coordinator approval is required to enrol  
Credit points: 24  
Campus: Gardens Point  
Teaching period: 2010 SEM-1 and 2010 SEM-2

MAB672 ADVANCED MATHEMATICAL MODELLING  
Models are developed beginning with the description of ‘real world’ problems. Emphasis is on the mathematical modelling and not on the development of new mathematical techniques. The unit includes: mathematical modelling; model formulation; dimensional analysis and re-scaling; curves of pursuit; bungy jumping; modelling with systems of ordinary differential equations; phase plane methods for analysing systems of ODEs; bacterial growth in a chemostat; predator-prey models with harvesting; limit cycles; oscillations and excitable media; modelling with partial differential equations; motion of a continuum; continuity; traffic flow; aggregation of slime mould amoebae; momentum; ideal gas dynamics; quasi-linear PDEs.  
Prerequisites: MAB422 and MAB312  Antirequisites: MAN672  Credit points: 12  Contact hours: 4 per week  
Campus: Gardens Point  Teaching period: 2010 SEM-1

MAB681 ADVANCED VISUALISATION AND DATA ANALYSIS  
This unit includes: advanced visualisation; virtual reality and data analysis; contemporary issues in data visualisation; introduction to advanced tools; completion of a project in advanced visualisation which demonstrates analysis, background research, investigation, development of project proposal, and presentation of the project outcomes.  
Prerequisite(s): MAB481 (Highly Recommended: MAB380 or MAB480)  
Contact hours: 4 per week  
Campus: Gardens Point  
Teaching period: 2007 SEM-2  
Incompatible with: MAN681