Freshman Briefing 2022

for Information Systems and Business Analytics Students
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Get to know other DISA professors and TAs here:  
https://www.comp.nus.edu.sg/about/depts/disca/faculty/
Agenda

1. Welcome Speech by Head of Department (HoD)
2. Where are you heading? See where your seniors are
3. How can I prepare? Remember the key milestones
4. Overview of a Degree Programme
5. Bachelor of Computing (Information Systems)
6. Bachelor of Science (Business Analytics)
7. Internships and Undergraduate Research Programmes
8. Student Experience Sharing
9. Q&A
Welcome Speech by HoD

Goh Khim Yong
Associate Professor
Head of Department, DISA

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Where are you heading?

See where your seniors are!
Information Systems and Business Analytics
Recent Graduate Employment

**Information Systems**
Recent Graduate Employment 2018 - 2021

- Software Engineer: 62%
- Systems Analyst: 6%
- IT Security Specialist: 5%
- Web and Mobile Applications Developer: 6%
- Quality Control Engineer: 6%
- Other: 20%

**Business Analytics**
Recent Graduate Employment 2018 - 2021

- Software Engineer: 34%
- Data Scientist: 33%
- Data Analyst: 9%
- Financial Analyst: 9%
- Business Consultant: 15%
- Other: 33%
How can I prepare?

Remember these key milestones
Milestones

- How do I plan?
- Internship after Y1?

Year 1

- Hackathon challenges?
- Innovation challenges?

Year 2

- Student exchange?
- NOC?
- Capstone project?

Year 3 (Penultimate)

Year 4

- Internship?
- Dissertation?
Some Advice

Step 1: Module planning
• Based on individual aspiration, particularly for programme electives and unrestricted electives

Step 2: CV review
• Domain and professional positioning

Step 3: Interview preparation
• Internship and job interview

Step 4: Technical test preparation

Advice:
1. Build your Linkedin profile from day 1
2. Explore opportunities and discover your interest – attend more industry talks
Overview of a degree programme
(New) Curriculum Structure

- For single degree, 160 modular credits (MCs)
  - MCs for core and elective modules may vary for different degrees

- For double degree, minimum 160 MCs, up to 200 MCs (approximately), satisfying both degree requirements

- For poly-intake, 20 MCs is automatically awarded for unrestricted electives
  - up to 20 MCs to fulfil

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<th>Modules</th>
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<tr>
<td>COMMON CURRICULUM REQUIREMENTS</td>
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Grand Total 160
**Curriculum Structure**

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- Read 1 General Education Module (GEM) from each of the 6 pillars
- Students are strongly encouraged to complete all GEM modules within the first two years of their candidature
- Two programme requirements are used to satisfy two pillar requirements (CS1010S/J fulfills Digital Literacy and BT1101 fulfills Data Literacy)
- Read IS1108 Digital Ethics and Data Privacy

Refer to this url: [https://www.nus.edu.sg/registrar/academic-information-policies/undergraduate-students/general-education/for-students-admitted-from-AY2021-22](https://www.nus.edu.sg/registrar/academic-information-policies/undergraduate-students/general-education/for-students-admitted-from-AY2021-22)
Interdisciplinary (ID) and Cross-disciplinary (CD) Modules

• Under the common curriculum requirements, students are required to take 12 MCs with at least two ID modules and no more than one CD module.

• BZA and IS students are advised to choose your two ID modules from:
  • IS1128 IT, Management and Organisation
  • IS2218 Digital Platforms for Business
  • IS2238 Economics of IT and AI
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- **Essential modules** that you **must** do
- For mathematics module requirement, there could be **2 options** for you to choose
- **Cross-faculty modules** (i.e., non CS/IS/BT-coded modules), please do clear them as soon as possible
- **Pre-allocated modules** (drop with care!)
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- **Complete 5 programme elective (PE) modules**
- **For specialisation, there is a pre-defined set of modules to take (20MCs)**
  - choosing a specialisation is optional, though it does help in your career positioning
  - once fulfilled the specialisation requirement, it will be reflected on your transcript
  - double counting of common modules between specialisations should not be more than 8 MCs among specialisation(s)
- **You have lots of elective modules to choose, so choose wisely**
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- Students with **CAP of 4.00 or higher** after completing **at least 70%** (i.e. **112 MCs**) of the MC requirement for the degree programme **may opt to replace the Industry Experience Requirement by Dissertation** (12 MCs).
- If you opt to do a dissertation, you **do not need to take up internship**.
- Students who aim for **Honours (Highest Distinction)** must pass the Dissertation.
• Poly-intake: reduce 20 MCs
• Doing a minor: 20 MCs (potentially up to 8 MCs double counted)
• Doing a second major: 40 MCs (potentially up to 16 MCs can be double counted)
• Suggestion: Choose more modules from the BT/IS elective module list. They are specially created for you!
Points to take note

• Read at least 18 MCs every semester throughout your candidature, except during the following semesters when you are allowed to read fewer MCs:
  • final semester before completion of all graduation requirements for the degree
  • semester in which you are doing industrial attachment or final year project
• You cannot overload more than 23 MCs in the first semester; overloading in subsequent semesters based on CAP and requires approval.
• You are not allowed to opt for a new Minor or Second Major programme beyond the end of the 5th semester of study. Do it early!

For more information: http://www.nus.edu.sg/registrar/academic-information-policies/undergraduate-students
Points to take note

• **Academic Integrity: Cheating, Plagiarism, Learning Materials Copyright, etc**
  • Check both your NUS and Comp emails regularly
    • Please do not ignore email from ohlb@nus.edu.sg (or ohlb@comp.nus.edu.sg)
  
• Find your study mate(s)
  • Many of the modules have group-based project and assignment
  • Capstone project is a team-based module
  • IIP is a paired internship

• Watch out for your CAP
  • to graduate, you need a minimum CAP of 2.00.
  • to continue in an undergraduate programme of study, a student may not have CAP below 2.00 for two consecutive semesters.

** for any semester in which the student's CAP falls below 2.00, s/he will be placed on probation.

** if the student's CAP remains below 2.00 for the second consecutive semester, the student will be issued a letter of dismissal by the Registrar and denied re-admission.

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<td>Honours (Highest Distinction)</td>
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<td>Honours (Distinction)</td>
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<td>Pass</td>
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Honours Degree Classification Criteria
Points to take note (S/U Option)

• May exercise S/U option for up to 32 MCs in first two regular semesters; if this is not fully utilised, the S/U option may still be exercised in subsequent semesters, for up to 12 MCs.

• Poly intake: may exercise S/U option for up to 20 MCs in first two regular semesters; if this is not fully utilised, the S/U option may still be exercised in subsequent semesters, for up to 12 MCs.

• S/U option will apply to all Level 1000 modules (with or without pre-requisites) and Level 2000 modules without other NUS modules as pre-requisites, unless otherwise stipulated by the Faculties/Departments.

• S/U option: obtain either Satisfactory (S) or Unsatisfactory (U) record for the module
  • not included in the calculation of your performance
  • 3-day window to decide on S/U after release of exam results
  • irrevocable!

• You must score a minimum “D” grade to get “S”. Otherwise your transcript will show “U” (Unsatisfactory) for the module. “U” also means that the module cannot be counted as satisfying a pre-requisite.
Bachelor of Computing (Information Systems)

https://www.comp.nus.edu.sg/programmes/ug/is/curr/#summary-of-degree-requirements-for-bcomp-information-systems
# Bachelor of Computing (Information Systems)

## Develop Expertise
- Specialisation: Digital Product and Platform Management, Financial Technology, Intelligent Systems Solutioning
- Industry Capstone Project Internship (IIP, ATAP, NOC) Information Systems Dissertation

## Develop Competency
- Full-Stack development: IS2102, IS2103, IS3106
- Project Management: IS4301, IS4100
- Professionalism and Communication: IS1108, IS2101, IS3103

## Foundation
- Business: IS1128, IS2218, IS2238
- Computing: CS1010J, CS2030, CS2040

## General Education
- IS1128, IS2218, IS2238

## Student Exchange
- General Education

## Second Major/Minor
- IS1128, IS2218, IS2238

## Double Degree
- IS1128, IS2218, IS2238
# Bachelor of Computing (Information Systems)

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<th>Year 1</th>
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**Total Graduation Requirements = 160 MCs**

- **ULR/ID/CD** = Common Curriculum Requirements
- **PE** = Programme Elective
- **UE** = Unrestricted Electives

**Programme Notes:**
- **Is4103:** (Capstone, 8 MCs)
- **Internship Or FYP:** (12 MCs)
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TOTAL GRADUATION REQUIREMENTS = 160 MCs - 20 MCs from Unrestricted Electives
Bachelor of Computing (Information Systems)

Programme Electives (PE)

• Choose 5 Information Systems PE modules to make up 20 MCs
• At least 3 modules must be at level-4000

IS Areas:
• Digital Business
• Financial Technology
• IT Solutioning
• IT Business Innovation and Entrepreneurship
• IT Security and Legal Aspects
# Bachelor of Computing (Information Systems)

## A Sample of IS Programme Electives

### Digital Business
- IS3150 Digital Media Marketing
- IS3240 Digital Platform Strategy and Architecture
- IS3261 Mobile Apps Development for Enterprise
- IS4151 Pervasive Technology Solutions and Development
- IS4262 Digital Product Management

### IT Security and Legal Aspects
- CS2107 Introduction to Information Security
- IFS4101 Legal Aspects of Information Security
- IS4231 Information Security Management
- IS4233 Legal Aspects of Information Technology
- IS4238 Strategic Cybersecurity

### Financial Technology
- IS4226 Systematic Trading Strategies and Systems
- IS4228 Information Technologies in Financial Services
- IS4302 Blockchain and Distributed Ledger Technologies
- IS4303 IT-Mediated Financial Solutions and Platforms

### IT Solutioning
- CS2105 Introduction to Computer Networks
- BT3017 Feature Engineering for Machine Learning
- CS3240 Interaction Design
- IS3107 Data Engineering
- IS3221 ERP Systems with Analytics Solutions
- IS4100 IT Project Management
- IS4204 IT Governance
- IS4234 Compliance and Regulation Technology
- IS4236 Cloud Services and Infrastructure Management
- IS4243 Information Systems Consulting
- IS4246 Smart Systems and AI Governance
- IS4248 Digital Business and the Metaverse
- IS4250 IT-enabled Healthcare Solutioning
- IS4301 Agile IT with DevOps

### IT Business Innovation and Entrepreneurship
- IS3251 Principles of Technology Entrepreneurship
- IS4152 Affective Computing
- IS4241 Social Media Network Analysis
- IS4242 Intelligent Systems and Techniques
- IS4261 Designing IT-enabled Business Innovations

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Bachelor of Computing (Information Systems)

Digital Product and Platform Management Specialisation

Pursue a career in designing and managing digital products and solutions

Set I (Select any 2 modules)
IS3240 Digital Platform Strategy and Architecture
IS4261 Designing IT-enabled Business Innovations
IS4262 Digital Product Management

Set II (Select any 3 modules)
IS3150 Digital Media Marketing
IS4100 IT Project Management
IS4234 Compliance and Regulation Technology
IS4236 Cloud Services and Infrastructure Management
IS4243 Information Systems Consulting
IS4250 IT-enabled Healthcare Solutioning
IS4302 Blockchain and Distributed Ledger Technologies
Bachelor of Computing (Information Systems)

Financial Technology Specialisation

Pursue niche jobs in Fintech in designing and implementing IT services, solutions and platform

Set I (Select any 2 modules)
IS4228 Information Technologies in Financial Services
IS4302 Blockchain and Distributed Ledger Technologies
IS4303 IT-Mediated Financial Solutions and Platforms

Set II (Select any 3 modules)
BT3017 Feature Engineering for Machine Learning
IS3221 ERP Systems with Analytics Solutions
IS4226 Systematic Trading Strategies and Systems
IS4231 Information Security Management
IS4233 Legal Aspects of Information Technology
IS4234 Compliance and Regulation Technology
IS4242 Intelligent Systems and Techniques
Bachelor of Computing (Information Systems)

Intelligent Systems Solutioning Specialisation

Take on a career path in designing, implementing and managing AI, IoT and AR system solutions

Set I (Select any 2 modules)
BT4014 Analytics Driven Design of Adaptive Systems
IS4242 Intelligent Systems and Techniques
IS4246 Smart Systems and AI Governance

Set II (Select any 3 modules)
BT3017 Feature Engineering for Machine Learning
CS3243 Introduction to Artificial Intelligence
IS3221 ERP Systems with Analytics Solutions
IS4151 Pervasive Technology Solutions and Development
IS4152 Affective Computing
IS4243 Information Systems Consulting
IS4248 Digital Business and the Metaverse
Bachelor of Science (Business Analytics)

**Foundation**
- Data + Statistics: MA1311, MA1521, ST2334
- Business: IS1128, IS2218, IS2238
- Computing: CS1010S, CS2030, CS2040

**Develop Competency**
- Analytical Modeling and Techniques: BT1101, BT2101
- Data Visualization and Systems Development: BT2102, BT3103
- Professionalism and Communication: IS1108, IS2101, IS3103

**Develop Expertise**
- Specialisation: Financial Analytics, Marketing Analytics, Machine-Learning Based Analytics
- Industry Capstone Project Internship (IIP, ATAP, NOC) Analytics Research Dissertation: BT4103, IS4010, CP3880, BT4101

**General Education**
- Student Exchange
- Second Major/Minor
- Double Degree
## Bachelor of Science (Business Analytics)

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# Bachelor of Science (Business Analytics)

## Poly-level intake (with module exemptions)

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</tbody>
</table>

**TOTAL GRADUATION REQUIREMENTS = 160 MCs - 20 MCs from Unrestricted Electives**
Bachelor of Science (Business Analytics)

Programme Electives (PE)

• Choose 5 Business Analytics PE modules to make up 20 MCs
• At least 3 modules must be at level-4000
• At least 3 module must be BT coded modules

BZA Areas:
• Business Applications
• Analytics Methods
• Technology Implementation
### Bachelor of Science (Business Analytics)

#### A Sample of BZA Programme Electives

<table>
<thead>
<tr>
<th>Business Applications</th>
<th>Analytics Methods</th>
<th>Technology Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBA3712 Dynamic Pricing and Revenue Management</td>
<td>BT3017 Feature Engineering for Machine Learning</td>
<td>IS3107 Data Engineering</td>
</tr>
<tr>
<td>IE3120 Manufacturing Logistics</td>
<td>BT3102 Computational Methods for Business Analytics</td>
<td>IS3221 ERP Systems with Analytics Solutions</td>
</tr>
<tr>
<td>IS3240 Digital Platform Strategy and Architecture</td>
<td>BT3104 Optimization Methods for Business Analytics</td>
<td>IS3261 Mobile Apps Development for Enterprise</td>
</tr>
<tr>
<td>BT4013 Analytics for Capital Market Trading and Investment</td>
<td>IE2110 Operations Research I or DBA3701 Introduction to Optimisation</td>
<td>BT4014 Analytics Driven Design of Adaptive Systems</td>
</tr>
<tr>
<td>BT4016 Risk Analytics for Financial Services</td>
<td>CS3244 Machine Learning</td>
<td>BT4301 Business Analytics Solutions Development and Deployment</td>
</tr>
<tr>
<td>BT4211 Data-Driven Marketing</td>
<td>DBA3803 Predictive Analytics in Business</td>
<td>IS4226 Systematic Trading Strategies and Systems</td>
</tr>
<tr>
<td>BT4212 Search Engine Optimization and Analytics</td>
<td>BSE4711 Econometrics for Business II</td>
<td>IS4228 Information Technologies in Financial Services</td>
</tr>
<tr>
<td>DBA4811 Analytical Tools for Consulting</td>
<td>BT4012 Fraud Analytics</td>
<td>IS4234 Compliance and Regulation Technology</td>
</tr>
<tr>
<td>IS4241 Social Media Network Analysis</td>
<td>BT4015 Geospatial Analytics</td>
<td>IS4246 Smart Systems and AI Governance</td>
</tr>
<tr>
<td>IS4250 IT-enabled Healthcare Solutioning</td>
<td>BT4221 Big Data Techniques and Technologies</td>
<td>IS4302 Blockchain and Distributed Ledger Technologies</td>
</tr>
<tr>
<td>IS4262 Digital Product Management</td>
<td>BT4222 Mining Web Data for Business Insights</td>
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</tr>
<tr>
<td>MKT4812 Market Analytics</td>
<td>BT4240 Machine Learning for Predictive Data Analytics</td>
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<tr>
<td></td>
<td>IS4241 Social Media Network Analysis</td>
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</tr>
<tr>
<td></td>
<td>IE4210 Operations Research II</td>
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<tr>
<td></td>
<td>ST3131 Regression Analysis</td>
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</tr>
<tr>
<td></td>
<td>ST4245 Statistical Methods for Finance</td>
<td></td>
</tr>
</tbody>
</table>
Bachelor of Science (Business Analytics)

Financial Analytics Specialisation

Pursue niche jobs in Investment, Banking, Finance, Trading, and Fund Management

Set I (Select any 2 modules)
BT4013 Analytics for Capital Market Trading and Investment
BT4016 Risk Analytics for Financial Services
IS4228 Information Technologies in Financial Services

Set II (Select any 3 modules)
BT4012 Fraud Analytics
BT4221 Big Data Techniques and Technologies
BT4222 Mining Web Data for Business Insights
IS3107 Data Engineering
IS4226 Systematic Trading Strategies and Systems
IS4234 Compliance and Regulation Technology
IS4302 Blockchain and Distributed Ledger Technologies
Bachelor of Science (Business Analytics)

Marketing Analytics Specialisation

Take on a career to create strategic marketing campaigns and promotions using analytics tools

Set I (Select any 2 modules)
BT4211 Data-Driven Marketing
BT4212 Search Engine Optimization and Analytics
BT4222 Mining Web Data for Business Insights

Set II (Select any 3 modules)
BT3017 Feature Engineering for Machine Learning
BT4014 Analytics Driven Design of Adaptive Systems
BT4015 Geospatial Analytics
BT4221 Big Data Techniques and Technologies
IS3240 Digital Platform Strategy and Architecture
IS3107 Data Engineering
IS4234 Compliance and Regulation Technology
IS4241 Social Media Network Analysis
Bachelor of Science (Business Analytics)

Machine Learning-based Analytics Specialisation

Pursue careers to design and develop business analytic solutions with Machine Learning analytics and techniques

Set I (Select any 2 modules)
- BT3017 Feature Engineering for Machine Learning
- BT4222 Mining Web Data for Business Insights
- IS4242 Intelligent Systems and Techniques

Set II (Select any 3 modules)
- BT4012 Fraud Analytics
- BT4221 Big Data Techniques and Technologies
- BT4240 Machine Learning for Predictive Data Analytics
- BT4301 Business Analytics Solutions Development and Deployment
- CS3243 Introduction to Artificial Intelligence
- CS3244 Machine Learning
- IS3107 Data Engineering
- IS4246 Smart Systems and AI Governance
More Advices on Module Planning

• You have some flexibility to deviate from suggested study plan
• Plan ahead and update study plan after each semester
• Be mindful of the pre-requisites
• Capstone project module/internship to be taken when you have sufficient confidence
• Always refer to the Cohort 2022/23 curriculum webpage on SoC website for changes to degree requirements
• Use current AY’s Course Schedule as a guide on module offerings, but note that the semester that a module will be offered may change in the following AY
  • Some electives may not be offered in every semester
• There may be module quota for popular elective modules
• Have contingency plans, especially if aiming for a specialisation
Internships and Undergraduate Research Programmes
**Internships**

- 12-MC, 24-week compulsory internship requirement
  - may be substituted with 12-MC FYP dissertation
- Taken after 80MCs and some core module prerequisites
- BZA/IS students can take IIP, ATAP, or NOC to fulfill internship requirement (but not two 12-week SIP internships)
  - Industry Internship Programme (24 weeks, two in a team)
  - Advanced Technology Attachment Programme (24 weeks, individual)
  - NUS Overseas College Programme
- Can pursue more than one internship (additional ones will count as unrestricted elective MCs)
- Possible to self-source internship but requires approval if to be taken with MCs
- Recommended to do internship after completing industry capstone project
- Allowed to take up to two 4MC modules during internship semester (subject to company approval)
- Not allowed to do internship in the final graduating semester (needs special approval)
Internships
IS4010 Industry Internship Programme (IIP)

• Paired Internship Programme for BZA/IS students
• Two students work in a team (can be formed across BZA/IS/CS/InfoSec programmes)
• Identify suitable IIP partner from group projects or capstone project
• January-June or May-October (24 weeks)
• Letter graded instead of Completed Satisfactory/ Completed Unsatisfactory (CS/CU) for 12MCs
• Highly structured project(s) with meaningful and challenging tasks to improve your employability
• Deliverables and expectations similar to an industry FYP

https://www.comp.nus.edu.sg/industry/intern/student/iip/
Internships
Some IIP Sponsoring Organizations
Undergraduate Research Program

• Final Year Project (FYP) Dissertation (BT4101/CP4101) – 2 semesters; 12MCs
  • students who aim for Honours (Highest Distinction) must pass the Dissertation
  • condition "CAP of 4.00 or higher after completing at least 70% (112 MCs) of the MC requirement for the degree programme" must be satisfied before students can commence BT4101/CP4101.
  • FYP project selection process takes place one semester ahead of the semester in which the students commence BT4101/CP4101
  • doing FYP as well as internship? Yes, possible but not concurrently.

• Computing Project (CP4106) – 2 semesters; 8MCs
  • open to all computing students who have completed at least 112 MCs.
  • students who are doing / plan to complete a Final Year Project (BT4101, CP4101, or any Integrated Honours Thesis/Project/Dissertation module) are not eligible to take CP4106

• Independent Project (CP3106) – 1 semester; 4MCs
Thank You

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