Freshman Briefing 2023
for Information Systems and Business Analytics Students
Get to know other DISA professors and TAs here:
https://www.comp.nus.edu.sg/about/depts/disa/faculty/
Agenda

1. Welcome Speech
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

Oh Lih Bin
Associate Professor
Deputy Head (Teaching and Degree Programmes),
DISA

ohlb@comp.nus.edu.sg
Where are you heading?

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

Information Systems
Recent Graduate Employment 2018 - 2021

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

Business Analytics
Recent Graduate Employment 2018 - 2021

- 34% Business Consultant
- 33% Financial Analyst
- 9% Data Analyst
- 9% Data Scientist
- 15% Software Engineer
Information Systems and Business Analytics
Companies that employ our graduates
### Difference Across IS, CS and BZA Degrees

IS and BZA graduates play a key role in the **digital transformation** of organisations

<table>
<thead>
<tr>
<th></th>
<th>Information Systems (IS)</th>
<th>Computer Science (CS)</th>
<th>Business Analytics (BZA)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Focus</strong></td>
<td>IT solutioning</td>
<td>Technical, algorithmic</td>
<td>Industry-relevant data analysis</td>
</tr>
<tr>
<td><strong>Objective</strong></td>
<td>More efficient/effective IT-enabled <strong>business</strong></td>
<td>Reliable, efficient software</td>
<td>Evidence-based decision making in <strong>business</strong></td>
</tr>
<tr>
<td><strong>Core task</strong></td>
<td>Design and implement IT solution by determining <strong>business requirements</strong> and understanding existing/new IT infrastructure and portfolio</td>
<td>Deliver software systems to meet defined requirements and specifications</td>
<td>Deliver data-driven and model-based insights and recommendations to address <strong>business problems</strong></td>
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</tbody>
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How can I prepare?

Remember these key milestones
Milestones

- How do I plan?
- Internship after Y1?

- Hackathon challenges?
- Innovation challenges?

- Student exchange?
- NOC?
- Capstone project?

- Internship?
- Dissertation?
Some Advice

Step 1: Course 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

https://nus.edu.sg/cfg/students
Overview of a degree programme
(New) Curriculum Structure

- For single degree, 160 units
- For double degree, minimum 160 units, up to 200 units (approximately), satisfying both degree requirements
- For poly-intake, 20 units is automatically awarded for unrestricted electives
  - up to 20 units to fulfil

<table>
<thead>
<tr>
<th>Modules</th>
<th>Units</th>
<th>Subtotals</th>
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<tbody>
<tr>
<td>COMMON CURRICULUM REQUIREMENTS</td>
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<tr>
<td>PROGRAMME REQUIREMENTS</td>
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<tr>
<td>Core Courses</td>
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<tr>
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<tr>
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### Curriculum Structure

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- Read 1 General Education (GE) Courses from each of the 6 pillars
- Students are strongly encouraged to complete all GE courses within the first two years of their candidature
- Two programme requirements are used to satisfy two pillar requirements (CS1010A/S/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) Courses

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

• BZA and IS students are advised to choose your two ID courses from:
  • IS1128 IT, Management and Organisation
  • IS2218 Digital Platforms for Business
  • IS2238 Economics of IT and AI
• Essential courses that you **must** do

• For mathematics course requirement, there could be **2 options** for you to choose

• Cross-faculty courses (i.e., non CS/IS/BT-coded courses), please clear them as soon as possible

• **Pre-allocated core courses** (drop with care!)
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- Complete 5 programme elective (PE) courses
- For specialisation, there is a pre-defined set of courses to take (20 units)
  - choosing a specialisation is optional, though it helps in your career positioning
  - once fulfilled the specialisation requirement, it will be reflected on your transcript
  - double counting of common courses between specialisations should not be more than 8 units among specialisation(s)
- You have lots of elective courses to choose, so choose wisely
• Students with GPA of 4.00 or higher after completing at least 70% (i.e. 112 units) of the unit requirement for the degree programme may opt to replace the Industry Experience Requirement by Dissertation (12 units).
• 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.
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- Poly-intake: reduce 20 units
- Doing a minor: 20 units (potentially up to 8 units double counted)
- Doing a second major: 40 units (potentially up to 16 units can be double counted)
- Suggestion: Choose more courses from the BT/IS elective course list. They are specially created for you!
Points to take note

• Read at least **18 units** every semester throughout your candidature, except during the following semesters when you are allowed to read fewer units:
  • 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 units** in the first semester; overloading in subsequent semesters based on GPA 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!
Points to take note

- **Academic Integrity: Cheating, Plagiarism, Learning Materials Copyright, etc**
  - Proper use of Generative AI tools for learning

- 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 courses have group-based project and assignment
  - Capstone project is a team-based course
  - IIP is a paired internship

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

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

** if the student’s GPA 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.

### Honours Degree Classification

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<th>Degree Classification</th>
<th>Criteria</th>
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<td>Honours (Highest Distinction)</td>
<td>GPA 4.50 and above</td>
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<td>Honours (Distinction)</td>
<td>GPA 4.00 – 4.49</td>
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<tr>
<td>Honours (Merit)</td>
<td>GPA 3.50 – 3.99</td>
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<td>Honours</td>
<td>GPA 3.00 – 3.49</td>
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<tr>
<td>Pass</td>
<td>GPA 2.00 – 2.99</td>
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</table>
Points to take note (S/U Option)

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

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

• S/U option will apply to all Level 1000 courses (with or without pre-requisites) and Level 2000 courses 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 course
  • 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 course. “U” also means that the course cannot be counted as satisfying a pre-requisite.

For further information: [http://www.nus.edu.sg/registrar/academic-information-policies/undergraduate-students/continuation-and-graduation-requirements](http://www.nus.edu.sg/registrar/academic-information-policies/undergraduate-students/continuation-and-graduation-requirements)
More Advices on Course 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 course/internship to be taken when you have sufficient confidence
• Always refer to the **Cohort 2023/24** curriculum webpage on SoC website for changes to degree requirements
• Use current AY’s **Course Schedule** as a guide on course offerings, but note that the semester that a course will be offered *may* change in the following AY
  • Some core courses will only be offered in one semester
  • Some elective courses may not be offered every semester
• There may be course quota for popular elective courses
  • Some elective courses may be offered in both semesters
• Have contingency plans, especially if aiming for a specialization or going for SEP
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
- Analytics + Statistics: MA1521, ST2334, BT1101
- Business: IS1128, IS2218, IS2238
- Computing: CS1010J, CS2030, CS2040

General Education
- Student Exchange
- Second Major/Minor
- Double Degree
# Bachelor of Computing (Information Systems)

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
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<td>S1</td>
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<tr>
<td>IS1108</td>
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<td>ULR/ID/CD</td>
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TOTAL GRADUATION REQUIREMENTS = 160 Units

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

For reference only
# Bachelor of Computing (Information Systems)

## Poly-level intake (with module exemptions)

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<td>MA1301 (UE1)</td>
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<tr>
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<tr>
<td>PE2</td>
<td>UE3</td>
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<tr>
<td>PE3</td>
<td>UE4</td>
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**TOTAL GRADUATION REQUIREMENTS = 160 Units - 20 Units from Unrestricted Electives**
## 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
- IS4221 ERP Systems with Analytics Solutions
- IS4100 IT Project Management
- 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
Bachelor of Computing (Information Systems)

Programme Electives (PE)

• Choose 5 Information Systems PE courses to make up 20 Units
• At least 3 courses 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)

Digital Product and Platform Management Specialisation

Pursue a career in designing and managing digital products and solutions

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

Set II (Select any 3 courses)
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 courses)
- IS4228 Information Technologies in Financial Services
- IS4302 Blockchain and Distributed Ledger Technologies
- IS4303 IT-Mediated Financial Solutions and Platforms

Set II (Select any 3 courses)
- 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 courses)
BT4014 Analytics Driven Design of Adaptive Systems
IS4242 Intelligent Systems and Techniques
IS4246 Smart Systems and AI Governance

Set II (Select any 3 courses)
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)

https://www.comp.nus.edu.sg/programmes/ug/ba/curr/#summary-of-degree-requirements-for-bsc-business-analytics
Bachelor of Science (Business Analytics)

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

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

Foundation
- Data + Statistics
  - MA1521, MA1522, ST2334
- Business
  - IS1128, IS2218, IS2238
- Computing
  - CS1010A/S, CS2030, CS2040

General Education

Student Exchange

Second Major/Minor

Double Degree
Bachelor of Science (Business Analytics)

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PE = Programme Elective
UE = Unrestricted Electives
Bachelor of Science (Business Analytics)

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
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20 Units 20 Units 20 Units 20 Units 20 Units 20 Units 0 Units

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

## A Sample of BZA Programme Electives

### Business Applications
- DBA3712 Dynamic Pricing and Revenue Management
- IE3120 Manufacturing Logistics
- IS3240 Digital Platform Strategy and Architecture
- BT4013 Analytics for Capital Market Trading and Investment
- BT4016 Risk Analytics for Financial Services
- BT4211 Data-Driven Marketing
- BT4212 Search Engine Optimization and Analytics
- DBA4811 Analytical Tools for Consulting
- IS4241 Social Media Network Analysis
- IS4250 IT-enabled Healthcare Solutioning
- IS4262 Digital Product Management
- MKT4812 Market Analytics

### Analytics Methods
- BT3017 Feature Engineering for Machine Learning
- BT3102 Computational Methods for Business Analytics
- BT3104 Optimization Methods for Business Analytics
- IE2110 Operations Research I or DBA3701 Introduction to Optimisation
- CS3244 Machine Learning
- DBA3803 Predictive Analytics in Business
- BSE4711 Econometrics for Business II
- BT4012 Fraud Analytics
- BT4015 Geospatial Analytics
- BT4221 Big Data Techniques and Technologies
- BT4222 Mining Web Data for Business Insights
- BT4240 Machine Learning for Predictive Data Analytics
- IS4241 Social Media Network Analysis
- IE4210 Operations Research II
- ST3131 Regression Analysis
- ST4245 Statistical Methods for Finance

### Technology Implementation
- IS3107 Data Engineering
- IS3221 ERP Systems with Analytics Solutions
- IS3261 Mobile Apps Development for Enterprise
- BT4014 Analytics Driven Design of Adaptive Systems
- BT4301 Business Analytics Solutions Development and Deployment
- IS4226 Systematic Trading Strategies and Systems
- IS4228 Information Technologies in Financial Services
- IS4234 Compliance and Regulation Technology
- IS4246 Smart Systems and AI Governance
- IS4302 Blockchain and Distributed Ledger Technologies
Bachelor of Science (Business Analytics)

Programme Electives (PE)

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

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

Financial Analytics Specialisation

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

Set I (Select any 2 courses)

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 courses)

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 courses)
- BT4211 Data-Driven Marketing
- BT4212 Search Engine Optimization and Analytics
- BT4222 Mining Web Data for Business Insights

Set II (Select any 3 courses)
- 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 courses)
- BT3017 Feature Engineering for Machine Learning
- BT4222 Mining Web Data for Business Insights
- IS4242 Intelligent Systems and Techniques

Set II (Select any 3 courses)
- 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
Internships and Undergraduate Research Programmes
Internships

- 12-unit, 24-week compulsory internship requirement
  - may be substituted with 12-unit FYP dissertation
- Taken after 80 units 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 units)
- Possible to self-source internship but requires approval if to be taken with course credits
- Allowed to take up to two 4-unit courses 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 12 units
• 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 Programmes

• Final Year Project (FYP) Dissertation (BT4101/CP4101) – 2 semesters; 12 units
  • students who aim for Honours (Highest Distinction) must pass the Dissertation
  • condition “GPA of 4.00 or higher after completing at least 70% (112 units) of the unit 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; 8 units
  • open to all computing students who have completed at least 112 units.
  • 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; 4 units
Other UG Teaching and Research Opportunities

• Undergraduate Student Tutor
  • $40/hour (current rate)
  • Max of 16 hours per week during term time
  • Invitation email from UG Studies Office (around Jun and Nov)

• Undergraduate Student Researcher
  • $20/hour (current rate)
  • Develop skills for FYP
  • Explore interests for postgraduate studies

• NUS Student Work Scheme (NSWS)
  https://nus.edu.sg/cfg/students/jobs-internships/nsws
Senior Student Sharing

1. Andre Heng (Information Systems)
2. Ivan Chin (Business Analytics)
3. Lim Fang Ding (Business Analytics and Economics DDP)
Thank You

Stay Connected with the DISA Family!

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