Bachelor of Advanced Computing (Honours)  
Machine Learning Specialisation

Instructions
1. Make sure that you are familiar with the program requirements of your degree.
2. Make sure you are following the program requirements for the academic year that you commenced your degree.
3. Fill in the boxes once you have successfully passed the course (or if you have been awarded course credit or exemption).
4. Ensure that you have completed the listed requirements for each section.
5. Always check your enrolments with CECS Student Services to ensure that you are on track to graduate.

The Bachelor of Advanced Computing (Honours) requires completion of 192 units, of which:

- A maximum of 10 courses may come from completion of 1000-level courses
- A minimum of 4 courses must come from the completion of 4000-level COMP-coded courses

### Compulsory Courses

*Complete the 9x courses listed below*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP1600</td>
<td>Foundations of Computing</td>
<td>6</td>
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<tr>
<td>COMP2100</td>
<td>Software Design Methodologies</td>
<td>6</td>
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<td>COMP2120</td>
<td>Software Engineering</td>
<td>6</td>
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<td>COMP2300</td>
<td>Computer Organisation and Program Execution</td>
<td>6</td>
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<td>COMP2310</td>
<td>Systems, Networks and Concurrency</td>
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<tr>
<td>COMP2420</td>
<td>Introduction to Data Management, Analysis and Security</td>
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<tr>
<td>COMP3600</td>
<td>Algorithms</td>
<td>6</td>
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</tr>
</tbody>
</table>

- ☐ completed at the ANU  ☐ awarded as credit  ☐ awarded as exemption

Prerequisites:
- Successful completion of COMP1100 or COMP1130
- Successful completion of 1x MATH-coded course

Availability:
- Semester 2

Prerequisites:
- Successful completion of COMP1100 or COMP1130
- Successful completion of COMP1110 or COMP1140
- Successful completion of 1x MATH-coded course

Availability:
- Semester 2

Prerequisites:
- Successful completion or current enrolment of COMP2100

Availability:
- Semester 1

Prerequisites:
- Successful completion of COMP1100 or COMP1130 or COMP1730
- Successful completion of 1x MATH-coded course

Availability:
- Semester 2

Prerequisites:
- Successful completion of COMP1130 or COMP1140 or COMP1110
- Successful completion of COMP2300

Availability:
- Semester 1

Prerequisites:
- Successful completion of COMP1110 or COMP1130

Availability:
- Semester 2

Prerequisites:
- Successful completion of COMP1110 or COMP1140
- Successful completion of COMP1600 or 1x 2000-level MATH-coded course
- Successful completion of 1x 2000-level COMP-coded course
COMP4450 Advanced Computing Research Methods (6 units)
- completed at the ANU
- awarded as credit
- awarded as exemption
- Prerequisites:
  - Successful completion of 8x courses in your current ANU degree

MATH1005 Discrete Mathematical Models (6 units)
- completed at the ANU
- awarded as credit
- awarded as exemption
- Prerequisites: N/A

### Compulsory Courses

**Complete 1x of the courses listed below**

**COMP1100 Programming as Problem Solving (6 units)**
- completed at the ANU
- awarded as credit
- awarded as exemption
- Availability: Semester 1 / Semester 2
- Prerequisites:

**COMP1130 Programming as Problem Solving (Advanced) (6 units)**
- completed at the ANU
- awarded as credit
- awarded as exemption
- Availability: Semester 1
- Prerequisites: N/A

### Compulsory Courses

**Complete 1x of the courses listed below**

**COMP1110 Structured Programming (6 units)**
- completed at the ANU
- awarded as credit
- awarded as exemption
- Availability: Semester 1 / Semester 2
- Prerequisites:
  - Successful completion of COMP1100 or COMP1130 or COMP1730

**COMP1140 Structured Programming (Advanced) (6 units)**
- completed at the ANU
- awarded as credit
- awarded as exemption
- Availability: Semester 2
- Prerequisites:
  - Successful completion of COMP1130

### Compulsory Research Courses

**Choose 1x of the below course combinations**

**Complete the 3x courses listed below** *(recommended course combination)*

**COMP4560 Advanced Computing Project (12 units)**
- completed at the ANU
- awarded as credit
- awarded as exemption
- Availability: Semester 1 / Semester 2
- Prerequisites:
  - Successful completion of COMP4450

Before you enrol into this course you must:
- Find a Project Supervisor
- Complete an ‘Independent Study Contract’
- Obtain approval from the Course Convenor

**COMP-coded 3000- or 4000-level course (6 units)**
- Course: ___________________________
  - completed at the ANU
  - awarded as credit

**COMP-coded 3000- or 4000-level course (6 units)**
- Course: ___________________________
  - completed at the ANU
  - awarded as credit
## Complete the course listed below

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Completed at ANU</th>
<th>Awarded as Credit</th>
<th>Awarded as Exemption</th>
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<tr>
<td>COMP4550</td>
<td>Advanced Computing Research Project</td>
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<td></td>
<td>- Successful completion of COMP4450</td>
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</table>

Before you enrol into this course you must:
- Have a weighted average mark of 70% (calculated from 6 courses with the highest marks in cognate disciplines [excluding 1000-level courses])
- Find a Project Supervisor
- Complete an 'Independent Study Contract'
- Obtain approval from the Course Convenor

## Specialisation Courses – Machine Learning

### Complete 4x of the courses listed below

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<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<th>Awarded as Exemption</th>
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<td>COMP3670</td>
<td>Introduction to Machine Learning</td>
<td>6</td>
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<td>Availability: Semester 2</td>
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<tr>
<td>COMP4650</td>
<td>Document Analysis</td>
<td>6</td>
<td>☐</td>
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<td>Prerequisites:</td>
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<td>- Successful completion of COMP1100 or COMP1130 or COMP1110 or COMP1140 or COMP11730 or COMP2100</td>
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<td>- Successful completion of COMP1600 or 1x MATH-coded course or 1x STAT-coded course</td>
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<td>- Successful completion of 2x 3000-level COMP-coded courses or 2x 3000-level INFS-coded course</td>
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<tr>
<td>COMP4660</td>
<td>Neural Networks, Deep Learning and Bio-inspired Computing</td>
<td>6</td>
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<td>Availability: Semester 1 (biennial – runs every two years)</td>
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<td>- Successful completion of COMP3670 or 2x 3000-level COMP-coded courses</td>
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<tr>
<td>COMP4670</td>
<td>Statistical Machine Learning</td>
<td>6</td>
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<td>- Successful completion of COMP1110 or COMP1140</td>
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<td>- Successful completion of MATH1014 or MATH1115</td>
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<tr>
<td>COMP4680</td>
<td>Advanced Topics in Machine Learning</td>
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<td>Availability: Semester 2 (biennial – runs every two years)</td>
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<td>ENGN4528</td>
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</table>
**Specified Elective Courses**

*Complete 2x COMP-coded courses*

You can choose 1 course from the following list to replace a COMP-coded elective:
- MATH1013 Mathematics and Applications 1
- MATH1014 Mathematics and Applications 2
- MATH1115 Advanced Mathematics and Applications 1
- MATH1116 Advanced Mathematics and Applications 2
- MATH2301 Games, Graphs and Machines
- ENGN1211 Discovering Engineering
- STAT1003 Statistical Techniques
- STAT1008 Quantitative Research Methods

☐ COMP-coded course *(6 units)*
Course: ___________________________
☐ completed at the ANU  ☐ awarded as credit

☐ COMP-coded course *(6 units)*
Course: ___________________________
☐ completed at the ANU  ☐ awarded as credit

**Specified Elective Courses**

*Complete 3x 3000- or 4000-level COMP-coded courses*

You can choose 1 course from the following list to replace a 3000- or 4000-level COMP-coded elective:
- ENGN3230 Engineering Innovation
- VCUG3001 Unravelling Complexity
- VCUG3002 Mobilising Research

☐ COMP-coded 3000- or 4000-level course *(6 units)*
Course: ___________________________
☐ completed at the ANU  ☐ awarded as credit

☐ COMP-coded 3000- or 4000-level course *(6 units)*
Course: ___________________________
☐ completed at the ANU  ☐ awarded as credit

☐ COMP-coded 3000- or 4000-level course *(6 units)*
Course: ___________________________
☐ completed at the ANU  ☐ awarded as credit

**Unspecified Elective Courses**

*Complete 8x ANU-wide courses*

☐ ANU-wide course *(6 units)*
Course: ___________________________
☐ completed at the ANU  ☐ awarded as credit

☐ ANU-wide course *(6 units)*
Course: ___________________________
☐ completed at the ANU  ☐ awarded as credit

☐ ANU-wide course *(6 units)*
Course: ___________________________
☐ completed at the ANU  ☐ awarded as credit

☐ ANU-wide course *(6 units)*
Course: ___________________________
☐ completed at the ANU  ☐ awarded as credit

☐ ANU-wide course *(6 units)*
Course: ___________________________
☐ completed at the ANU  ☐ awarded as credit

☐ ANU-wide course *(6 units)*
Course: ___________________________
☐ completed at the ANU  ☐ awarded as credit

☐ ANU-wide course *(6 units)*
Course: ___________________________
☐ completed at the ANU  ☐ awarded as credit

☐ ANU-wide course *(6 units)*
Course: ___________________________
☐ completed at the ANU  ☐ awarded as credit
□ ANU-wide course (6 units)
Location: ____________________________
☐ completed at the ANU ☐ awarded as credit

Additional electives as a result of awarded course exemption(s)
You are required to complete an additional ___ COMP-coded elective courses
You are required to complete an additional ___ ANU-wide elective courses
# 2020 Suggested Study Plan – Semester 1 Commencement

## YEAR 1
### Semester 1 2020
- **COMP1100 Programming as Problem Solving**
- **MATH1005 Discrete Mathematical Models**
- **MATH1013 Mathematics and Applications 1**
- **ANU-wide elective course**
- **OR**
- **COMP1130 Programming as Problem Solving (Advanced)**
- **ANU-wide elective course**
- **MATH1014 Mathematics and Applications 2**
- **OR**
- **ANU-wide elective course**

### Semester 2 2020
- **COMP1110 Structured Programming**
- **COMP1600 Foundations of Computing**
- **COMP-coded elective course**
- **MATH1014 Mathematics and Applications 2**
- **OR**
- **COMP1140 Structured Programming (Advanced)**
- **ANU-wide elective course**

## YEAR 2
### Semester 1 2021
- **COMP2100 Software Design Methodologies**
- **COMP2300 Computer Organisation and Program Execution**
- **COMP2420 Introduction to Data Management, Analysis and Security**
- **COMP-coded elective course**
- **MATH1014 Mathematics and Applications 2**
- **OR**
- **COMP2119 Software Engineering**
- **COMP2310 Systems, Networks and Concurrency**
- **COMP3600 Algorithms**
- **COMP3670 Introduction to Machine Learning**

### Semester 2 2021
- **COMP2120 Software Engineering**
- **COMP2310 Systems, Networks and Concurrency**
- **COMP3600 Algorithms**
- **COMP3670 Introduction to Machine Learning**
- **COMP-coded elective course**
- **ANU-wide elective course**

## YEAR 3
### Semester 1 2022
- **COMP4450 Advanced Computing Research Methods**
- **COMP-coded 3000- or 4000-level course**
- **COMP4670 Statistical Machine Learning**
- **COMP4660 Neural Networks, Deep Learning and Bio-inspired Computing**
- **OR**
- **ANU-wide elective course**
- **OR**
- **COMP-coded 3000- or 4000-level course**
- **COMP4680 Advanced Topics in Machine Learning**
- **ANU-wide elective course**

### Semester 2 2022
- **COMP-coded 3000- or 4000-level course**
- **COMP-coded 3000- or 4000-level course**
- **COMP4680 Advanced Topics in Machine Learning**
- **ANU-wide elective course**
- **ANU-wide elective course**

## YEAR 4
### Semester 1 2023
- **COMP4560 Advanced Computing Project**
- **COMP-coded 3000- or 4000-level course**
- **ENGN4528 Computer Vision**
- **ANU-wide elective course**
- **OR**
- **ANU-wide elective course**

### Semester 2 2023
- **COMP4560 Advanced Computing Project**
- **COMP-coded 3000- or 4000-level course**
- **COMP4650 Document Analysis**
- **ANU-wide elective course**
- **OR**
- **ANU-wide elective course**

## ALTERNATIVE FINAL YEAR
### YEAR 4
### Semester 1 2023
- **COMP4550 Advanced Computing Research Project**
- **ENGN4528 Computer Vision**
- **ANU-wide elective course**
- **OR**
- **ANU-wide elective course**

### Semester 2 2023
- **COMP4550 Advanced Computing Research Project**
- **COMP4650 Document Analysis**
- **ANU-wide elective course**
- **OR**
- **ANU-wide elective course**
### 2020 Suggested Study Plan – Semester 2 Commencement

<table>
<thead>
<tr>
<th>Year</th>
<th>Semester 1</th>
<th>Course</th>
<th>Course Type</th>
<th>Elective Type</th>
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<tbody>
<tr>
<td>YEAR 1</td>
<td>Semester 2 2020</td>
<td>COMP1100 Programming as Problem Solving</td>
<td>COMP-coded elective course</td>
<td>ANU-wide elective course</td>
</tr>
<tr>
<td></td>
<td>Semester 1 2021</td>
<td>COMP1110 Structured Programming</td>
<td>MATH1005 Discrete Mathematical Models</td>
<td>COMP-coded elective course</td>
</tr>
<tr>
<td>YEAR 2</td>
<td>Semester 2 2021</td>
<td>COMP1600 Foundations of Computing</td>
<td>COMP2100 Software Design Methodologies</td>
<td>COMP3600 Algorithms (Permission required to complete COMP1600 as a co-requisite)</td>
</tr>
<tr>
<td></td>
<td>Semester 1 2022</td>
<td>COMP2300 Computer Organisation and Program Execution</td>
<td>COMP2420 Introduction to Data Management, Analysis and Security</td>
<td>ANU-wide elective course</td>
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<tr>
<td>YEAR 3</td>
<td>Semester 2 2022</td>
<td>COMP2120 Software Engineering</td>
<td>COMP2310 Systems, Networks and Concurrency</td>
<td>MATH1014 Mathematics and Applications 2</td>
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<td>Semester 1 2023</td>
<td>COMP4450 Advanced Computing Research Methods</td>
<td>ENGN4528 Computer Vision</td>
<td>COMP4670 Statistical Machine Learning</td>
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<tr>
<td>YEAR 4</td>
<td>Semester 2 2023</td>
<td>COMP4560 Advanced Computing Project</td>
<td>COMP-coded 3000- or 4000-level course</td>
<td>COMP4650 Document Analysis</td>
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<td>Semester 1 2024</td>
<td>COMP4560 Advanced Computing Project</td>
<td>COMP-coded 3000- or 4000-level course</td>
<td>COMP4660 Neural Networks, Deep Learning and Bio-inspired Computing</td>
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<td>ALTERNATIVE FINAL YEAR</td>
<td>Semester 2 2023</td>
<td>COMP4550 Advanced Computing Research Project</td>
<td>COMP4650 Document Analysis</td>
<td>ANU-wide elective course</td>
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<td>Semester 1 2024</td>
<td>COMP4550 Advanced Computing Research Project</td>
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<td>ANU-wide elective course</td>
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