



# COMP2320

## Offensive Security

Session 1, In person-scheduled-weekday, North Ryde 2023

*School of Computing*

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#### **Disclaimer**

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## General Information

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Credit points

10

Prerequisites

Corequisites

(COMP2110 or COMP249) and (COMP2250 or COMP247) and (COMP2300 or COMP343)

Co-badged status

COMP6320

Unit description

This unit provides an introduction to ethical hacking and offensive security. Strong emphasis is given to ethics and ethical behaviour as students are exposed to penetration techniques and methods. In other words, students are taught how to systematically look for and exploit vulnerabilities in software, protocols and systems in order to report those vulnerabilities and improve the safety of those software, protocols and systems. Communication, in speaking and writing plays a critical role in this unit. The most proficient students in this unit may be selected to represent the University at various national pentesting competitions and challenges.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

**ULO1:** Explain the importance of ethics and ethical behaviour in relation to offensive security and penetration testing.

**ULO2:** Perform scoping, vulnerability scanning and reconnaissance on a range of devices, platforms, protocols, systems and organisations.

**ULO3:** Exploit vulnerabilities for a range of purposes, including access control, payload

delivery and privilege escalation.

**ULO4:** Effectively communicate results verbally and in-writing to technical and non-technical audiences.

## General Assessment Information

### Submission of assessable work

For all your assignments, and for your professional life in the future, you are encouraged to

- set your personal deadline earlier than the official deadline
- keep backups of all your important files
- make sure that no-one else has access to your files or documents

### Assignments

Assignment work must be written clearly, with good grammar, correct word usage, correct punctuation, and lack of spelling errors. Poor or bad expression will be penalized. Wherever required, all written work must be properly referenced and conform to standard stylistic conventions.

### Late Submissions

Late assessments are not accepted in this unit unless a Special Consideration has been submitted and approved.

### Requirements to Pass this Unit

Whilst there are a number of learning activities and assessments that make up the unit, in order to pass the unit the only requirement is that you achieve a total mark equal to or greater than 50%.

There are no hurdle requirements for the unit.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<u>In-class exercises</u>	30%	No	Weekly
<u>Practical exams</u>	60%	No	Multiple
<u>Research and Presentation</u>	10%	No	Week 13

### In-class exercises

Assessment Type <sup>1</sup>: Practice-based task

Indicative Time on Task <sup>2</sup>: 15 hours

Due: **Weekly**

Weighting: **30%**

During workshops, you will be set an in-class exercise related to that week's lecture topic to complete during the class. Your work will be checked and marked in the workshop class in which it is completed. No late submissions are accepted.

On successful completion you will be able to:

- Explain the importance of ethics and ethical behaviour in relation to offensive security and penetration testing.
- Perform scoping, vulnerability scanning and reconnaissance on a range of devices, platforms, protocols, systems and organisations.
- Exploit vulnerabilities for a range of purposes, including access control, payload delivery and privilege escalation.

## Practical exams

Assessment Type <sup>1</sup>: Practice-based task

Indicative Time on Task <sup>2</sup>: 30 hours

Due: **Multiple**

Weighting: **60%**

Practical exams will be conducted during the semester as group exercises. Students will be required to submit a report following each exam for individual assessment. Formative feedback will be given with students being able to improve their marks as the semester progresses.

On successful completion you will be able to:

- Perform scoping, vulnerability scanning and reconnaissance on a range of devices, platforms, protocols, systems and organisations.
- Exploit vulnerabilities for a range of purposes, including access control, payload delivery and privilege escalation.
- Effectively communicate results verbally and in-writing to technical and non-technical audiences.

## Research and Presentation

Assessment Type <sup>1</sup>: Presentation

Indicative Time on Task <sup>2</sup>: 5 hours

Due: **Week 13**

Weighting: **10%**

Student groups will research a well known vulnerability (chosen by the teaching staff) and provide a presentation and demonstration of the vulnerability. Each presentation will be followed by a brief question-and-answer session.

On successful completion you will be able to:

- Explain the importance of ethics and ethical behaviour in relation to offensive security and penetration testing.
- Effectively communicate results verbally and in-writing to technical and non-technical audiences.

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<sup>1</sup> If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

<sup>2</sup> Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

## Delivery and Resources

### Classes

Each week you should attend two hours of lectures, and a two hour practical workshop. For details of scheduled classes consult the [timetables webpage](#).

**Note** that practicals workshops (lab sessions) commence in **week 1**. The week-by-week details of the practical (lab) classes will be available from iLearn.

**You must attend the practical that you are enrolled in.**

### Textbook and Reading Materials

COMP2320 / COMP6320 is a practice-oriented unit and as such the practical exercises and lecture notes make up the bulk of the learning material. However, the following texts are recommended to students as a supplement the course materials:

1. Penetration Testing: A Hands-On Introduction to Hacking, by Georgia Weidman.
2. The Web Application Hacker's Handbook: Finding and Exploiting Security Flaws, by Dafydd Stuttard and Marcus Pinto.

3. Hands-On Ethical Hacking and Network Defense, 3rd Edition, by Michael T. Simpson, Nicholas Antill.
4. Business Data Communications and Networking, 14th Edition, by FitzGerald, Dennis, and Durcikova.

### **Unit Websites**

COMP2320 / COMP6320 is administered via [iLearn \(http://ilearn.mq.edu.au/\)](http://ilearn.mq.edu.au/).

This unit outline can be found in the university's [unit guides](#)

### **Lecture Recordings**

Digital recordings of lectures may be available. They will be linked from iLearn.

## **Technologies Used and Required**

COMP2320 / COMP6320 is a BYOD (Bring Your Own Device) unit. You will be expected to bring your own laptop computer (Windows, Mac, or Linux) to the workshop, install and configure the required software, and incorporate secure practices into your daily work (and play!) routines.

## **General Notes**

In this unit, you should do the following:

- Review recorded lecture materials.
- Attend your weekly Practical session.
- Attend lectures, take notes, ask questions.
- Work on any assignments that have been released.

Note that Workshops commence in week 1. Please note that you will be required to submit work every week.

## **Communication Methods in COMP2320 / COMP6320**

All announcements about unit-related matters will be communicated through iLearn. It is the student's responsibility to ensure they check iLearn announcements, forums, and FAQ sections regularly.

Students are encouraged to use the iLearn forums for asking questions about unit content and concepts. Where questions are about specific details in an assessment submission, this may need to be sent via a private forum post in the first instance (details are provided in iLearn about how this is set up) so as not to be at risk of breaching the university academic integrity policy.

Any one-on-one communication with unit staff that is via email must be done through the student's official university email account (the one ending with '@students.mq.edu.au'). There may be occasions where unit staff will email a student directly to their @students.mq.edu.au email address. It is the student's responsibility to ensure they check their official university email regularly for communications from the university staff.

## COVID Information

For the latest information on the University's response to COVID-19, please refer to the Coronavirus infection page on the Macquarie website: <https://www.mq.edu.au/about/coronavirus-faqs>. Remember to check this page regularly in case the information and requirements change during semester. If there are any changes to this unit in relation to COVID, these will be communicated via iLearn.

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](https://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a

range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

### The Writing Centre

[The Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

## Student Services and Support

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)
- [Student Advocacy](#) provides independent advice on MQ policies, procedures, and processes

## Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#).



The policy applies to all who connect to the MQ network including students.