

# ENGR 3004 BIOMEDICAL SIGNALS AND DATA ANALYSIS

**Credit Points** 10

**Legacy Code** 301121

**Coordinator** Gaetano Gargiulo ([https://directory.westernsydney.edu.au/search/name/Gaetano Gargiulo/](https://directory.westernsydney.edu.au/search/name/Gaetano%20Gargiulo/))

**Description** This subject will cover recent advances in biomedical signal and data analysis including electrocardiography, electroencephalography, human-computer-interface, electromyography, biomedical images and spikes processing. Topics covered span from basic to advanced signal processing. This subject will have a strong practical design focus with laboratories and tutorials focused on the design of usable software packages dealing with real biomedical signals.

**School** Eng, Design & Built Env

**Discipline** Biomedical Engineering

**Student Contribution Band** HECS Band 2 10cp

Check your fees via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 3 subject

**Pre-requisite(s)** ELEC 2001 OR ENGR 2001

**Assumed Knowledge**

Basic programming skills.

## Learning Outcomes

After successful completion of this Subject, students will be able to:

1. Process biomedical signals
2. Write user-interface to automatically/aid expert scoring signals
3. Understand the production of biomedical images

## Subject Content

1. Introduction to Biomedical Signals
2. Digital filters for Biomedical Signals
3. Automated scoring of Biomedical Signals
4. Biomedical images: production and processing

## Special Requirements

Essential equipment

Access to a computer at SCEM computer Labs.

## Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task	Mandatory
Professional Task	8 submissions required	50	N	Individual	Y
Practical Exam	2 hours	50	N	Individual	Y

Teaching Periods

## Spring (2024)

### Penrith (Kingswood)

**On-site**

**Subject Contact** Gaetano Gargiulo ([https://directory.westernsydney.edu.au/search/name/Gaetano Gargiulo/](https://directory.westernsydney.edu.au/search/name/Gaetano%20Gargiulo/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=ENGR3004\\_24-SPR\\_KW\\_1#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR3004_24-SPR_KW_1#subjects))

### Parramatta City - Macquarie St

**On-site**

**Subject Contact** Gaetano Gargiulo ([https://directory.westernsydney.edu.au/search/name/Gaetano Gargiulo/](https://directory.westernsydney.edu.au/search/name/Gaetano%20Gargiulo/))

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## Sydney City Campus - Term 3 (2024)

### Sydney City

**On-site**

**Subject Contact** Ehsan Gatavi ([https://directory.westernsydney.edu.au/search/name/Ehsan Gatavi/](https://directory.westernsydney.edu.au/search/name/Ehsan%20Gatavi/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=ENGR3004\\_24-SC3\\_SC\\_1#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR3004_24-SC3_SC_1#subjects))

## Sydney City Campus - Term 2 (2025)

### Sydney City

**On-site**

**Subject Contact** Ehsan Gatavi ([https://directory.westernsydney.edu.au/search/name/Ehsan Gatavi/](https://directory.westernsydney.edu.au/search/name/Ehsan%20Gatavi/))

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=ENGR3004\\_25-SC2\\_SC\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ENGR3004_25-SC2_SC_1#subjects))

## Spring (2025)

### Penrith (Kingswood)

**Hybrid**

**Subject Contact** Gaetano Gargiulo ([https://directory.westernsydney.edu.au/search/name/Gaetano Gargiulo/](https://directory.westernsydney.edu.au/search/name/Gaetano%20Gargiulo/))

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=ENGR3004\\_25-SPR\\_KW\\_3#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ENGR3004_25-SPR_KW_3#subjects))

### Parramatta City - Macquarie St

**Hybrid**

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