COMP 3003 CLOUD COMPUTING ARCHITECTURE

Credit Points 10

Legacy Code 301204

Coordinator Rodrigo Neves Calheiros (https://directory.westernsydney.edu.au/search/name/Rodrigo Neves Calheiros/)

Description This subject, the second part of the Amazon Web Services (AWS) Academy Cloud Computing Architecture curriculum, provides deeper understanding about advanced cloud computing services and how to architect cloud applications that are scalable, reliable, and efficient in terms of cost and performance. Students will learn advanced cloud computing concepts including notification and messaging, serverless computing, API gateways, NoSQL databases, content delivery networks, stream processing, and long-term storage. The subject also covers advanced cloud security and infrastructure automation. All these aspects are explored in practice with AWS services. Upon completion of this subject, students will be prepared for the AWS Certified Solutions Architect - Associate exam.

School Computer, Data & Math Sciences

Discipline Computer Science, Not Elsewhere Classified.

Student Contribution Band HECS Band 2 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 3 subject

Pre-requisite(s) COMP 3012 AND
COMP 1005

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Assess different design patterns for web-scale storage and recommend the most appropriate pattern for a specific problem
2. Analyze common design patterns and architectures for loosely coupled cloud computing systems and recommend the most appropriate pattern for a specific problem
3. Evaluate strategies to enable high scalability, reliability, cost-efficiency, and performance in a cloud-based system
4. Apply principles and applications of advanced cloud services such as notification and messaging, API gateways, stream processing, and serverless computing
5. Apply concepts of security and infrastructure automation in a cloud-based system
6. Design and deploy scalable, reliable, and efficient systems that utilise advanced cloud services

Subject Content

Design patterns for architecting loosely coupled cloud computing systems: microservices and serverless architectures
Design patterns for web-scale storage: content delivery networks, object storage, and relational and no-relational databases
Advanced cloud services: API gateways, stream processing, and serverless computing
Queueing and notification systems
Advanced cloud security
Reliability in clouds
Cost and performance efficiency in cloud computing
Infrastructure automation
Common cloud design patterns and cloud architectures

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
Report	2,000 words	30	N	Individual	N
Applied Project	10 page report	25	N	Group	N
Quiz	10-20 minutes each for 10 quizzes	S/U	N	Individual	N
Practical	15 minutes each for 7 weeks	30	N	Individual	N
Viva Voce	10 minutes	15	N	Individual	N

Teaching Periods

Sydney City Campus - Term 1 (2025)

Sydney City

On-site

Subject Contact Antoinette Cevenini (https://directory.westernsydney.edu.au/search/name/Antoinette Cevenini/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=COMP3003_25-SC1_SC_1#subjects)

Spring (2025)

Parramatta - Victoria Rd

On-site

Subject Contact Rodrigo Neves Calheiros (https://directory.westernsydney.edu.au/search/name/Rodrigo Neves Calheiros/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=COMP3003_25-SPR_PS_1#subjects)