

## **ESE 546 Networking Algorithms and Analysis Fall 2023**

Instructor: Carlos Fernando Gamboa  
Email: carlos.gamboa@stonybrook.edu  
Office Hours: Mondays 6:00 PM to 8:00 PM via zoom link  
(<https://stonybrook.zoom.us/j/92764975829>) or by appointment.

Text:  
Required books:

T. Robertazzi, Networks and Grids: Technology and Theory, 1st edition. Springer, 2007. J. MacCormick, 9 Algorithms that Changed the Future, Princeton University Press, 2012.

T. Robertazzi, Planning Telecommunication Networks, 1st edition, Wiley, 1999.  
Optional book:

T. Robertazzi, Computer Networks and Systems: Queueing Theory and Performance Evaluation, 3rd edition, Springer, 2000.

### **Algorithms**

Search  
Error Codes  
Data Compression  
Digital Signatures  
Public Key Cryptography

### **Network Technology**

Multiple Access Performance  
Teletraffic Modeling  
Switching Elements and Fabrics

### **Queueing Theory**

Continuous Time Queues  
Discrete Time Queues

### **Network Planning**

Mathematical Programming for Planning  
Network Algorithms for Planning Routing  
Flow and Congestion Control  
Related topics as time permits.

Test dates and grading:  
September 28<sup>th</sup>, Test 1 (35 pts),  
October 27<sup>th</sup>, Test 2 (35 pts),  
November 30<sup>th</sup>, Test 3 (30 pts).

The University Senate Undergraduate and Graduate Councils have authorized that the following required statements appear in all teaching syllabi (graduate and undergraduate courses) on the Stony Brook Campus:

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