

## Template for AUC Course Manual

Course Name	Numerical Mathematics
Course #	900228SCIY
Credits	6 ecp
Timeslot	Mondays 9:00 - 10:30 Thursdays 13:45 - 15:15
Prerequisite(s)	Vector Calculus, Linear algebra.
Related AUC Theme(s)	-
Lecturer(s)/Coordinator	Dr. Nithin Govindarajan
Course Content	<p>This course is intended as a first introduction to the field of numerical mathematics/analysis. Numerical analysis is the study of algorithms for solving problem of continuous mathematics. Here, the phrase continuous refers to mathematical problems involving real or complex variables. Examples are problems such as solving a system linear/non-linear equations, evaluation of special functions, finding the extremal points of a function, solving an ordinary or partial differential equation, eigenvalue problems, etc. Many of these problems, which arise naturally in the physical sciences and engineering, do not admit for simple exact solutions. Approximation through finite precision arithmetic plays an important role to address such problems.</p>
Learning Outcomes	<ul style="list-style-type: none"> <li>- Learn how to design and implement algorithms.</li> <li>- Analyze and asses performance of numerical methods to solve basic problems in continuous mathematics</li> </ul>
Contribution to the general learning outcomes; select from Academic Standards and Procedures (OER), section 2.3. Indicate number.	
Form(s) of Instruction	Lectures

	Computer Labs (students are expected to bring laptops with Matlab installed)
Assessment	There will be 10 homework assignments, each weighted equally. No finals.
Main Course Sources	Textbook (or equivalent); required reading Further literature, bibliography Web resources
Visits and Excursions	-
Course Adjustments	-
Contact Information Lecturer	ngovindarajan@ucsb.edu

## Weekly Programme

Week	Date	Subject	General reading questions and topics for discussion	Readings (chapter textbook, articles, web resources, page count per week*)	Assessments and deadlines
1 a					
1 b					
2 a					
2 b					
3 a					
3 b					
4 a					
4 b					
5 a					
5 b					
6 a					
6 b					
7 a					
7 b					
8 a					
8 b					
9 a					
9 b					
10 a					
10 b					
11 a					
11 b					
12 a					
12 b					
13 a					
13 b					
14 a					
14 b					
15 a					

15 b					
16 a					
16 b					

\* Page count based on the norm that 1 ecp = 100 pages, for a maximum of 600 pages per 6 ecp course. Please note that page count may vary somewhat per discipline.