Syllabus of Numerical Approximation
Spring 2018, 3.0 credits,

Time and place: 周四第3、4、5节(9:50-12:15)；紫金港校区西2-311。
Instructor: 张庆海 (qinghai@zju.edu.cn)
Website: http://www.math.zju.edu.cn/teacher_intro.asp?userid=329
Teaching Assistants (TAs): 胡涤非; 李森
Email for questions and homework submission: NumApproximation@163.com

Prerequisites: (1) real analysis and (2) linear algebra and (3) programming experience of Matlab or C.

Textbook: There is no official textbooks for this class as the instructor will write up all lecture notes.

Description: This course concerns the foundation of computational mathematics with covered materials widely used in all disciplines of computational sciences. Topics include:

- Solution of nonlinear equations,
- Interpolation, especially splines,
- Approximation,
- Numerical integration,
- Computer arithmetic,
- Conditioning and stability.

Reference books:

You may consult the following books if you have difficulty in following the instructor or if you still want to learn more after grasping the required materials. The first two books are appropriate in the former case whereas the third and fourth books are better in the latter case. The last book is in Chinese.

5) 《数值逼近》，蒋尔雄、赵风光、苏仰锋编著．第二版．复旦大学出版社．ISBN: 978-7-309-06133-8

Homework: There will be a homework assignment every one or two weeks, due on Thursdays by the beginning of class. If you turn in your homework after class on Thursday and before 5 p.m. on Friday, your homework score will be multiplied by a factor of 0.8. No homework will be accepted after Friday 5p.m. The lowest homework grade will be dropped.

Programming: Programming is an essential part of this class. You are strongly encouraged to use Matlab or the (free) open source alternative Octave. C++ code is also acceptable.

Grading: After receiving a graded homework, please make sure that you understand any mistakes (if there is any) and that you know how to correct them. If you think any grading is mistaken, please bring it to the attention of TA within three days from the day the graded homework was returned. If the issue is not resolved by the TA, you may then bring it to the instructor. The breakdown for the course grade is as follows:

- Homework: 30%,
- Final exam: 70%.

Extra credit: I encourage the students to think actively and to study hard. As rewards, extra credit will be given to those who

- correctly answer extra-credit questions posed in class;
- correctly solve extra-credit problems in homework assignments;
- bring to my attention any typos and mistakes in lecture notes;
- typeset the answers to homework assignments in \LaTeX.

Note: This syllabus is not a binding legal contract. It may be modified later as the class progresses.