MAD 4401 Introduction to Numerical Analysis

Basic Information

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Course Meetings: MWF 3:00-3:50 (Period 8)    Lit 219

Office Hours: W  F  9:35-10:25  (Period 3),  or by appointment

Exam Schedule:

Midterm Exam: March 13, 2019 (in class)

Final Exam: April 24, 2019 (in class)

Quizzes: Regular in-class quizzes will be given.

Note 1: You can read more details about the class from the syllabus.

Note 2: This is a class in which programming is expected. I prefer that you program in MATLAB. MATLAB code will be given in class and can be found in Canvas.

Answers to Practice Final Exam:

1. \( p(x) = (x+1)^2(x-1)^2 \)
2. (a) -1<alpha<1, (b) -2, 3/2,  (c) -2<alpha<3/2
3. (a) (0.pi/2), (b) many answers possible
4. (a) will not converge, (b) will converge, (c) will converge
5. (a) i21 = 2, i31 = -1 i32 =0, u11 = 2, u12 = 3, u13 = -1, u22 = -2 , u23 = 1, u33 = 3 (b) To solve Ly=b we need 5 MD and 3 AS,  to solve Ux=y we need 5 MD, 3 AS
6. \( p(x) = a+bx+cx^2 +dx^3, \) with a=0, b= 12, c=-18, d=7
7. (a) $A = -\pi^3/6$, $B = \pi^2/2$, (b) approx $-\pi^3/6$
8. (a) 2, (b) 4, (c) 3
9. (a) $n > 4$
10. (a) $L = 2$, (b) $w_0 = 0$, $w_{i+1} = w_i + 0.25[e^{3ti} - 2w_i + 0.125(e^{3ti} + 3e^{3ti} + 4w_i)]$
11. $a = 2/5$, $b = 4/5$
12. (a) proof, (b) $O(0.25^n)$, (c) $n > \ln \pi / \ln 4$

Useful Links

- syllabus
- classnotes
- past exam 1
- past exam 2
- past final exam
- MATLAB code

class slides:

- Lecture2.3
- Lecture2.4
- Lecture3.1
- Lecture3.2