Methods in Applied Mechanics

Winter Quarter 2015

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This is the homepage for MAE29BA during Winter Quarter 2015. Last updated: March 25, 2015.

Practical details

Lectures: MWF 10-10:50 am, WLH 2112. My e-mail address is sgls@ucsd.edu, but if you have a question, talk to me before or after class, or come to office hours. Office hours: Tu 9-11 am. Problem class: Tuesdays 2-330, EBUII 305. **It is your responsibility to come and find me if you have questions, concerns, etc...**

Textbook and Resources

Mathematical Methods for Physics and Engineering by Riley, Hobson and Bence (2006, Cambridge University Press, 3rd edition, 1362 pages). It's probably worth buying. I have placed it on reserve at the library, including an electronic copy, as well as other books. Password for the library page: SL294b (let me know if there's a problem).

See the website for the MAE207 Applications of complex analysis I taught in 2008 here. There is some overlap.

Syllabus

1. Review of complex variable.
2. Conformal maps.
3. Contour integration.
4. Integral transforms.
5. Integral equations.
6. Shocks?

Lecture Schedule (provisional)

- **Jan 5: I Complex variable**
- Jan 7: (*Cont*.)
- Jan 9: (*Cont*.)
- **Jan 12: Professor Saintillan (I am away)** (*Cont*.)
- Jan 14: **Professor Saintillan (I am away)** (*Cont*.)
- Jan 16: **Professor Saintillan (I am away)** (*Cont*.)
- **Jan 19: Martin Luther King holiday**
- Jan 21: **II Conformal maps HW I due**
- Jan 23: (*Cont*.)
- **Jan 26:** (*Cont*.)

- Jan 28: (*Cont.*)
- Jan 30: (*Cont.*)
- **Feb 2:** (*Cont.*)
- Feb 4: (*Cont.*) **HW II due**
- Feb 6: (*Cont.*)
- **Feb 9: III Complex integration**
- Feb 11: (*Cont.*) **Midterm**
- Feb 13: (*Cont.*)
- **Feb 16: President's Day holiday**
- Feb 18: (*Cont.*) **HW III due**
- Feb 20:(*Cont.*)
- **Feb 23: IV Integral transforms**
- Feb 25: (*Cont.*)
- Feb 27: (*Cont.*)
- **Mar 2:** (*Cont.*)
- Mar 4: **HW IV due**
- Mar 6: (*Cont.*)
- **Mar 9: I am away** (*Cont.*)
- Mar 11: (*Cont.*)
- Mar 13: **V Integral equations**
- **Mar 16:** *(Cont.)*

Homework

Homework policy: you may discuss problems among yourselves, but everything you write and hand in should be your own work. Regrades: you should write a short explanation and turn it in to me within one week of the homework being due.

- I Due Jan 21. Solution.
- II Due Feb 4. Solution.
- III Due Feb 18. Solution.
- IV Due Mar 4. Solution.

Midterm

Feb 11, 50 minutes in class. Solution.

Suggestions about homework and the like (from 2005)

Final

Friday March 20: 8:00-10:59 am. Solution.

Grading policy

I remind you of UCSD's policy on academic integrity. I may rescale the three components (homework, midterm, presentation and project) separately to arrive at the final grade. See practical details.