

Who am I: **Robert von Fáy-Siebenbürgen**

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## **SYLLABUS (MAS315)**

- **Waves on strings. D'Alembert solution. Standing and propagating waves. Normal modes**
- **Use of Fourier series for solving one-dimensional wave problems.**
- **Sound waves. Plane, cylindrical and spherical sound waves.**
- **Water waves. Wave dispersion. Group velocity.**
- **Traffic waves.**
- **2-hour exam in January**

## Reference Literature

### **R. Knobel: An Introduction to the Mathematical Theory of Waves**

American Mathematical Society, 2000

**ISBN: 0-8218-2039-7 pbk**

Covers almost all course material. Excellent book.

### **J. Billingham & A.C. King: Wave Motion**

Cambridge Texts in Applied Mathematics, CUP, 2001

**ISBN: 0-521-634504 pbk**

Covers all the course. Many parts of the book may be hard for UK maths UGs.

### **G.B. Whitham: Linear and Nonlinear Waves**

Pure and Applied Mathematics, Wiley, 1999

**ISBN: 0-471-35942 pbk**

Covers all the course. Really a text for graduate and research students. Authoritative reference.

### **Sir J. Lighthill: Waves in Fluids**

Cambridge Mathematical Library, CUP, 2003

**ISBN: 0-521-01045**

Covers part of the course on fluid waves. Excellent insight.

+ HELP each other!

## Comments

**Skills** from 1st year (or elsewhere): **MAS122**

- Differentiation & integration (i.e., calculus)

**Lecturing style**

- **No handouts!** You must take notes + o/hs

## Course and HW Plan MAS315 (AY 2018-19)

Week	Lectures	HW	Other Qs that can be tackled
W01 L01 W01 L02	12:00 24/09/18 (LT10) 17:00 24/09/18 (LT B)		S1: Q1, 3
W02 L03 W02 L04	12:00 01/10/18 (LT10) 17:00 01/10/18 (LT B)	HW1 S1: Q2, 4	Rest of S1
W03 L05 W03 L06	12:00 08/10/18 (LT10) 17:00 08/10/18 (LT B)	<b>Hand in HW1 by 18:00 on 08/10/18</b>	S2: Q1, 3, 6
W04 L07 W04 L08	12:00 15/10/18 (LT10) 17:00 15/10/18 (LT B)	HW2 S2: Q2, 4, 5	Rest of S2
W05 L09 W05 L10	12:00 22/10/18 (LT10) 17:00 22/10/18 (LT B)	<b>Hand in HW2 by 18:00 on 22/10/18</b>	S3: Q1-3
W06 L11 W06 L12	12:00 29/10/18 (LT10) 17:00 29/10/18 (LT B)	HW3 S3: Q4, 5	Rest of S3
W07 L13 W07 L14	12:00 05/11/18 (LT10) 17:00 05/11/18 (LT B)	<b>Hand in HW3 by 18:00 on 05/11/18</b>	S4: Q2, 3
W08 L15 W08 L16	12:00 12/11/18 (LT10) 17:00 12/11/18 (LT B)	HW4 S4: Q1, 4	Rest of S4
W09 L17 W09 L18	12:00 19/11/18 (LT10) 17:00 19/11/18 (LT B)	<b>Hand in HW4 by 18:00 on 19/11/18</b>	S5: Q1-4
W10 L19 W10 L20	12:00 26/11/18 (LT10) 17:00 26/11/18 (LT B)		Rest of S5

I hope, I'll be able to stick to this plan, but if there are any snags I will advise you as soon as possible