The University of Sydney
School of Mathematics and Statistics

SSP Working Seminar: Information Sheet

MATH2916: Working Seminar A — Semester 1, 2019

This is an invitation-only Special Studies Program unit for a small group of 2nd year students. It is a "working seminar", with every participant presenting one of the lectures and writing a short essay on the topic of their lecture. The audience is expected to ask questions, engage in discussions, and participate in assessing the lectures and the essays.

Convenor Robby Marangell, Carslaw 720. `robert.marangell@sydney.edu.au`

Time and location Friday 1:00-3:00pm weeks 2-13, Carslaw 275

Consultation Hours By appointment. Plan to meet at least once the week before your presentation.

Web-page `http://www.maths.usyd.edu.au/u/UG/IM/MATH2916/`

Assessment

- One presentation (+ 5 minutes of discussion) (assessment 25% by staff, 5% by peers). The timetable of presentations will be agreed in Week 4.
- An essay of about 8-10 pages on the same topic, due two weeks after the presentation (assessment 40% by staff, 5% by peers).
- A 1-2 page referee report on a peer's essay (assessment 25 %). This will be assigned early in the semester.
- Clarity of presentation, accuracy, attention to detail and good writing/presentation style will be the major criteria for these assessments. The convenor will assist you in preparing your presentation and your essay. In order to pass the unit successfully, you must attend all lectures.

Learning outcomes

By completing the working seminar you will

- practise effective oral and written communication of mathematics;
- learn how to discover and express mathematical ideas;

Reference books

The topic for MATH2916 is 'Nonlinear Dynamics, Chaos and Fractals'. The main reference for this seminar is :

H-O. Peitgen, H. Jürgens & and D. Saupe. *Chaos and Fractals: New Frontiers of Science.* Springer-Verlag, Hong Kong, 1992.

This book is available on two hour reserve from the Sci-tech library.

Supplementary Texts which you might want to consult are

R. L. Devaney. *An Introduction to Chaotic Dynamical Systems*, Addison-Wesley, Redwood City, CA, 1989.

R. L. Devaney. *Chaos, Fractals, and Dynamics: Computer Experiments in Mathematics*, Addison-Wesley, Redwood City, CA, 1990.

J. Gleick. *Chaos: making a new science*, Penguin, New York, NY 1987.

S. Lynch. *Dynamical Systems with Applications using MATLAB* Birkhäuser. Boston, MA, 2004.

S Strogatz. *Nonlinear Dynamics and Chaos*, Perseus Books Publishing, LLC. Cambridge, MA, 1994

For some topics you may want to include additional reference books - feel free to consult with me about these, or ask me for suggestions for more.

Advice on writing and presenting mathematics can be found in:

- Terence Tao, *Advice on Writing Papers*, on his Wordpress blog.
- Nicholas J. Higham, *Handbook of Writing for the Mathematical Sciences*, second edition, SIAM, 1998. (Scitech 808.06651 4)
- Norman E. Steenrod, Paul Halmos, et al., *How to Write Mathematics*, American Mathematical Society, 1973. (Scitech 808.066 17)
- Steven G. Krantz, *A Primer of Mathematical Writing*, American Mathematical Society, 1997. (Scitech 808.0665 25)