

**NEW ZEALAND SCHOOL OF MUSIC
NZSM 181: Sonic Arts 1, Acoustics
Course Requirements 2006**

COURSE ORGANISATION

Lecturers: **Michael Norris (course co-ordinator)**

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Tutor: Grayson Gilmour

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Class Times: Tuesday 4-6pm (full year), Hunter Lecture Theatre 2

Tutorials 30 mins in groups of 4, Trimester 2.

Held in EMS 4, Scott House. Times to be arranged.

Regular bookings will also be arranged in EMS 4 for work on the practical assignments.

Additional information relating to this course will be posted either on the notice board in EMS 4 and on Blackboard. It is essential that you make a habit of checking these notices and your email account regularly. *If you are not using your SCS email address, please arrange to have this forwarded to your regular email address, as Blackboard uses the SCS addresses.*

PAPER PRESCRIPTION

An introduction to the fundamentals of acoustics as they apply to sonic arts, the function and design of musical instruments, factors involved in the perception of sound, as well as the potential to use these principles in developing a musical understanding of acoustical phenomena.

LEARNING OUTCOMES

A student completing this paper will:

1. have a sound understanding of basic acoustical principles.
2. be able to relate these principles to their application in sonic arts.
3. have developed an aural awareness of the details of sound.
4. have expanded their musical knowledge and perception into a more scientific understanding of the subject.

5. have an enhanced understanding of sonic structures and acoustical phenomena in the context of sonic arts.

PAPER CONTENT

Lectures will focus on aspects of acoustics and music technology as a way of enhancing understanding of musical concepts. Practical exercises will introduce the fundamental tools of thinking in sound through technology.

MATERIALS

Lecturers will supply course materials as necessary.

Students are also strongly recommended to refer to the following **key texts**:

Benade, A.H	<i>The Fundamentals of Musical Acoustics</i>
Campbell, M. & Greated, C	<i>The Musicians' guide to acoustics</i>
Johnston, I	<i>Measured Tones</i>
McAdams, S. & Bigand, E	<i>Thinking in Sound</i>
Pierce, John R	<i>The Science of Musical Sound</i>

Supplementary texts:

Cook, P.R	<i>Music, Cognition and Computerized Sound</i>
Deutsch, D	<i>Musical Illusions and Paradoxes (CD 97-140)</i>
Emmerson, S. (ed.)	<i>The Language of Electroacoustic Music</i>
Roederer, J.G	<i>The Physics and Psychophysics of Music</i>
Truax, B	<i>Acoustic Communication</i>
Rossing, T.D	<i>The Science of Sound</i>
Butler, D	<i>The Musician's guide to perception and cognition</i>

These are held on closed reserve and/or 3-day loan in the main library. Other relevant reading materials will be posted on Blackboard throughout the year.

ASSESSMENT

1. 60-minute test one	20%	Held August 15
2. 60-minute test two	20%	Held October 10
3. One written assignment	20% (limit: 1200 words)	Due September 18
4. Practical exercise 1	20%	Due September 4
5. Practical exercise 2	20%	Due October 16

More information on the practical and written assignments will be handed out during lectures and posted to Blackboard.

Deadlines: A penalty of 10% per working day will be deducted for the late handing in of assignments and exercises unless a medical certificate is presented. Extensions will only be granted under exceptional circumstances.

Plagiarism: Any assignment in which plagiarism is detected will be given a 0 mark. Serious cases of plagiarism will result in automatic disqualification for terms in a course and could even be referred to the University's Disciplinary Committee.

Assessment and Course Objectives: As this course is geared primarily towards students of music, assessment is aimed at allowing the musician to expand musical knowledge and perception into a more scientific understanding of the subject.

MANDATORY PAPER REQUIREMENTS

Completion of all work by the due dates is a mandatory course requirement. Work involving plagiarism will not be marked. **Attendance of at least 80% of lectures is also a mandatory course requirement.**

GENERAL NZSM POLICIES AND STATUTES

Students should familiarise themselves with the NZSM's policies and statutes regarding Student and Staff Conduct, Academic Grievances, and Academic Integrity and Plagiarism. Please see the NZSM website (www.nzsm.ac.nz). Information about Student Services including support for Students with Disabilities can be found in the *NZSM Student Handbook 2006* (available from the NZSM offices) as well as on the NZSM website.

Lecture Schedule

Jul 11	The physics of sound	MN
Jul 18	Pitch I (Harmonics, standing waves)	MN
Jul 25	Pitch II (Tuning)	MN
Aug 1	Complex sounds: Resonance & Timbre	MN
Aug 8	Computer modelling of sound (Max/MSP)	MN
Aug 15	TEST ONE	MN

— *Mid-trimester break* —

Sep 5	Synthesis 1	LM
Sep 12	Synthesis 2	LM
Sep 19	Hearing and the Ear	LM
Sep 26	Piano/voice	LM
Oct 3	Other instrumental acoustics	MN
Oct 10	TEST TWO	MN