

COURSE SYLLABUS

- Course:** PSYCH 3A03 (AUDITION)
- Prerequisite(s):** One of BIOL 2A03, ISCI 2A18 A/B, LIFE SCI 2C03, LIFE SCI 2CC3, PNB 2XA3, PNB 2XB3, PSYCH 2E03, or PSYCH 2NF3.
- Instructor:** Dr. Paul A. Faure Department of Psychology, Neuroscience & Behaviour, PC-111
Phone: 905.525.9140, ext. 26393; email: paul4@mcmaster.ca
- Course TAs:** Taylor Byron PC-151; Phone: ext. 26042; email: byront@mcmaster.ca
Roberto Valdizon PC-151; Phone: ext. 26042; email: valdizr@mcmaster.ca
- Office Hours:** By appointment. The best way to contact us is via email.
- Location:** Lectures are Tuesday, Wednesday, and Friday from 1230-1320 hrs in BSB-136.
Tutorials are held on Wednesday from 1330-1420 hrs in BSB-136.
- Textbook:** Yost WA (2013) Fundamentals of Hearing: An Introduction. Brill (5th Edition).
- Logistics:** McMaster University reserves the right to change course dates, assignments and their grading weights, and deadlines at the discretion of the instructor and in case of an emergency, labour disruption, civil unrest/disobedience, etc.
- Overview:** PSYCH 3A03 is a Faculty of Science course intended for junior or senior undergraduates in the fields of Psychology and Biology. The course provides an introduction to the biology of hearing and auditory perception. The emphasis is on fundamental auditory principles, their underlying physiological mechanisms, and experimental methods used in hearing research. Topics include physical acoustics; sound analysis; structure (neuroanatomy) and function (electrophysiology) of the mammalian auditory system; auditory perception; and psychoacoustics.
- Objectives:** By the end of this course students should have a good understanding of: the fundamentals of sound energy, propagation and physical acoustics; the anatomy and neurophysiology of the mammalian peripheral and central auditory systems; psychoacoustical testing and measurement, and basic of auditory perception.
- Website:** Check <<https://www.science.mcmaster.ca/pnb/faure/3a03>> for info and updates.

The following policies are necessary in order to be fair and equitable to all students.

Recordings. The recording of lectures, tutorials, and/or exams (audio, photos, or video) is prohibited.

Attendance. You are expected to attend all lectures, tutorials, and exams. If you are late, please do not disrupt and/or disturb your fellow students who arrived in a timelier manner and are already seated and working. Talking during lecture or tutorials, and related disturbing behaviour, is inconsiderate. Do not schedule holiday or other travel during lectures, tutorials, or exams.

Lectures / Tutorials. You are responsible for all material presented in lecture and in tutorial sessions. Tutorial periods are used to supplement lectures and to provide new information or more detailed examples, problems, and demonstrations of relevant course material.

Readings. In this course you are expected to go beyond the memorization of facts to display an understanding of the material. Some students will find this difficult. You are strongly encouraged to read the relevant text chapters on a particular topic before and after the lecture/tutorial devoted to that topic. The initial reading will help you to follow along during the lecture/tutorial and to identify those areas in which you are having difficulty understanding. The follow-up reading(s) will help you to recall, synthesize, and consolidate the material that was presented.

Notes. Handouts and problem sets will be posted as PDF files on the course website. Psych 3A03 has no course packet because it is absolutely essential that you attend class and develop proper note-taking skills. If you miss a lecture/tutorial, it is your responsibility to obtain the notes on this material from a classmate. I

advise against trying to take verbatim notes during lectures/tutorials because it will be difficult for you to keep up and to think critically about what is being discussed. Moreover, most of the material discussed in class can also be found in the text, course notes, or by searching the web, albeit presented from a different perspective. Slides shown in class will not be posted on the web because of copyright restrictions. To consolidate your knowledge, students are encouraged to search the web to obtain additional information and/or pictures pertinent to a particular topic.

Grading. Your performance in the course will be evaluated with 3 multiple-choice examinations and 2 writing assignments. The first two exams will be Mid-Term Examinations of one-hour duration each and will be held in-class. Each Mid-Term will count for 25% of your Final Grade. The third exam will be a Final Examination of two-and-a-half hours duration and will be scheduled by the Office of the Registrar. The Final Exam is cumulative and will count for 40% of your Final Grade. Calculators, books, notes, etc. are prohibited during all examinations; all you will need is a supply of pencils, erasers and, of course, adequate knowledge of the subject matter being tested. The Writing Assignments are worth 10% of your Final Grade (5% each) and instructions for these assignment will be posted to the course website.

Makeup Exams and Extensions. If you miss an exam or homework assignment deadline, you will need a valid excuse AND be able to document this excuse in order to qualify for a makeup exam or extension. Examples of legitimate excuses include sickness and conflict with another M.U. academic or sporting event. If you simply skip an exam or assignment, hoping that an eventual excuse will become acceptable, then you will receive a grade of zero for that work. PSYCH 3A03 does not subscribe to proposals for “extra work” in mitigation of exam/assignment delinquencies. **Except in the case of illness, a makeup exam or extension will NOT be given unless arrangements are made with the course Instructor or TAs in advance of the regularly scheduled deadline.** In the case of missed academic work worth <25% of your final grade due to minor medical illness or personal situations lasting <3 calendar days, students must report using the McMaster Student Absence Form (MSAF) AND contact the course instructor and/or TAs within 2 calendar days of the missed work to qualify for a makeup exam or assignment extension. The MSAF may only be used once per term and may NOT be used for the final exam. For medical illness or personal situations lasting >3 calendar days and/or for missed academic work worth ≥25% of your final grade, and/or for any request for relief in a term where the MSAF has been used previously, students must provide appropriate supporting documentation to their Faculty Office to qualify for a makeup exam or assignment extension. See [Requests for Relief for Missed Academic Term Work](#).

Review Sessions. The class immediately prior to each Mid-Term Examination will be used as a question and answer session and to review course material presented in class and during tutorials. You will benefit greatly from these sessions by coming prepared with specific questions in mind. Do not expect the course Instructor or TAs to repeat the original lecture on a particular topic.

Seeking Help. Please ask the course Instructor or TAs for help at any time if you need it. As a learner, it is your responsibility to recognize when you need help and then ask for it.

Academic Dishonesty. You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in the principles of honesty and academic integrity. Academic dishonesty is to knowingly act or fail to act in a way that results (or could result) in an unearned academic credit or advantage. Academic dishonesty consists of misrepresentation by deception or by other fraudulent means, and can result in serious consequences for a student such as the grade of zero on an exam or assignment, loss of course credit with a notation on the student’s transcript that reads “Grade of F assigned for academic dishonesty”, and/or suspension or expulsion from McMaster University. It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty, please refer to [McMaster’s Academic Integrity Policy](#).

Academic Accommodation of Students with Disabilities. Students requiring an academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone (905-525-9140, ext. 28652) or by e-mail <sas@mcmaster.ca>. For more information, consult [McMaster Policy for Academic Accommodation of Students with Disabilities](#).

Course Calendar (subject to revision) & **Assigned Readings** [Y### = pages to read from textbook]

- SEPT T04: Introduction to Sound
W05: Physical Acoustics 1. The Nature of Sound Waves [Y01-07; Y18-25]
W05: *Harmonic Motion Tutorial*
F07: Physical Acoustics 2. Simple Harmonic Motion [Y11-14; 263-267]
T11: Physical Acoustics 3. Describing Sound [Y14-18]
W12: Physical Acoustics 4. Sound Intensity and Pressure [Y269-270]
W12: *Harmonic Motion Tutorial*
F14: Physical Acoustics 5. Sound Transmission I: Propagation & Absorption [Y27-36]
T18: Physical Acoustics 6. Sound Transmission II: Reflection, Refraction & Diffraction
W20: Physical Acoustics 7. Simple versus Complex Sounds [Y37-52]
W20: *Decibels Tutorial* [Y25-27]
F21: Sound Analysis 1. Fourier Analysis [Y271-273]
T25: Sound Analysis 2. Resonators [Y53-55]
W26: Sound Analysis 3. Filters [Y55-58]
W26: *Audio Demonstrations & Complex Sounds Tutorial*
F28: Sound Analysis 4. Linear Systems [Y59-63]
- OCT T02: Peripheral Auditory System 1. Outer and Middle Ear [Y67-81]
W03: *Review Session*
W03: **Mid-Term Examination I**
F05: Peripheral Auditory System 2. Inner Ear Anatomy [Y83-90]
T09: No Class (*Fall Break*)
W10: No Class (*Fall Break*)
F12: No Class (*Fall Break*)
T16: Peripheral Auditory System 3. Inner Ear Mechanics & Function [Y90-102]
W17: Peripheral Auditory System 4. Hair Cells, Cochlear Potentials & Emissions [Y103-113]
W17: *TBA*
F19: Peripheral Auditory System 5. The Auditory Nerve [Y113-120; Y287-293]
T23: Peripheral Auditory System 6. The Neural Code [Y121-131; Y281-286]
W24: Peripheral Auditory System 7. Afferent & Efferent Physiology [Y131-140] (*Full Moon*)
W24: *Exam Review (Full Moon)*
F26: Central Auditory System 1. Organization & Neuroanatomy [Y223-229]
T30: Central Auditory System 2. Cochlear Nucleus [Y229-241]
W31: Central Auditory System 3. Inferior Colliculus & Auditory Cortex [Y241-248] (*Halloween*)
W31: *TBA (Halloween)*
- NOV F02: Central Auditory System 4. Single Cell Electrophysiology
T06: Central Auditory System 5. Function
W07: Human Speech Production [Y215-217] (*New Moon*)
W07: *Review Session (New Moon)*
F09: **Mid-Term Examination II**
T13: Psychophysics [Y275-279]; Psychoacoustics 1. Threshold Detection [Y143-150]
W14: Psychoacoustics 2. Discrimination Detection [Y150-157]
W14: *Signal Detection Theory Tutorial*
F16: Psychoacoustics 3. Spectral Masking [Y159-163; 184-187]
T20: Psychoacoustics 4. Critical Bands [Y163-166]
W21: Psychoacoustics 5. Temporal Masking [Y166-172]
W21: *Exam Review*
F23: Psychoacoustics 6. Binaural Hearing: Sound Localization & Lateralization [Y173-184] (*Full Moon*)
T27: Psychoacoustics 7. Loudness Perception [Y189-191]
W28: Psychoacoustics 8. Pitch Perception [Y191-199]
W28: *TBA*
F30: Psychoacoustics 9. Perception of Complex Sounds I: Spectral Cues [Y203-209]
- DEC T04: Psychoacoustics 10. Perception of Complex Sounds II: Temporal Cues [Y209-221]
W05: The Abnormal and Aging Auditory System [Y249-261]

Important Dates

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| 12 September 2018 (Wednesday) | Last day for registration and adding or dropping courses |
| 03 October 2018 (Wednesday) | Mid-Term Examination I |
| 08 October 2018 (Monday) | <i>Thanksgiving Day, Canada</i> |
| 09 November 2018 (Friday) | Last Day for canceling courses without failure by default |
| 09 November 2018 (Friday) | Mid-Term Examination II |
| 07-20 December 2018 | Final Examination (scheduled by Office of the Registrar) |