

PSY385H5 F – Hearing and Hearing Disorders

MONDAY	9:00am – 11:00am	DH 2070 Deerfield Hall
TUESDAY	9:00am – 10:00am	DH 2070 Deerfield Hall

Contact Information

Professor Kathy Pichora-Fuller
Office Location: CCT 4063
k.pichora.fuller@utoronto.ca

Teaching Assistant: Huiwen Goy
huiwen.goy@utoronto.ca

Office Hours: Monday 11:00am to noon
or by appointment.

Communication

Only email sent from Blackboard or utoronto accounts will be read by the instructor or TA. All email should include “PSY385” in the subject header or messages may not be read. All communication about extensions and late work should be sent to the instructor and NOT to the TA.

Reading Material

Required Textbook:

- Martin, F.N., & Clark, J.G. (2015). Introduction to Audiology (12th ed). Pearson (ISBN 978-0-13-349146-3)

Recommended Textbooks (second hand copies may be available):

- Excellent for students with interests in neuroscience:
Moller, A. (2006). Hearing: Anatomy, physiology, and disorders of the auditory system. Academic Press.
- Excellent for students with interests in perception:
Yost, W. (2006). Fundamentals of Hearing: An Introduction (5th edition). Academic Press.
Moore, B.C.J. (2003). An Introduction to the Psychology of Hearing (5th edition). Academic Press.

Supplemental Readings: See below. Other recommended readings will be listed throughout the term on the course website on Blackboard at <http://portal.utoronto.ca>

Course Evaluation

Test 1	20 marks
Test 2	20 marks
Assignments	40 (8 x 5) marks
Essay and Presentation	10 marks
Weekly Participation	10 marks

Course Description

Sound waves impinging upon our ears convey information about the presence, location, and identity of objects in our environment. An examination of the extraction of this information from sound waves and of the disruption of speech understanding and communication by various peripheral and central disorders.

Prerequisite: Prerequisite: PSY201H5/ equivalent, 210H5/ 213H5/270H5/ 274H5/ 280H5/ 295H5/ CCT202H5

If you have questions about missing prerequisites, the waiting list or other enrollment issues, please contact the Academic Counsellor for further information at jodie.stewart@utoronto.ca

The present course builds on the foundation of knowledge concerning perception that was covered in PSY 280 (or other prerequisite courses). PSY 385 focuses to a greater extent than the prerequisite courses on the everyday functional significance of listening behaviour. It explores how the anatomy and physiology of the human auditory system works to enable the performance of listening activities in everyday life. The course combines elements of neuroscience, perception and cognition, as well as social and health psychology related to the abilities and experiences of people who have hearing disorders. The introduction provides a rationale for the approach taken in the course and how it relates to other fields in psychology and health – issues that will be re-visited in the final week of the course. The first part of the course focuses on the acoustics of the signal received by the auditory system, how acoustical input is transduced and encoded in the periphery auditory system, and how hearing is tested in routine clinical circumstances. Later in the course, complex signal processing, namely speech perception and listening comprehension in realistic situations, is explored and central auditory processes are discussed in relation to naturalistic listening demands. The nature of auditory pathologies at different sites in the pathway and some common causes of hearing loss will be introduced and related to problems listening in everyday life. Special issues for infant and elderly listeners and listeners who are hard-of-hearing will be discussed in terms of possible clinical and ecological rehabilitative solutions. This course is especially useful for students who wish to apply for graduate training in speech-language pathology or audiology or other health and human services professions. It is also useful for students interested in graduate training in perception, cognition, and neuroscience.

OBJECTIVES: As a student in PSY 385, you will:

1. Consolidate foundational knowledge of acoustics and audition learned in prerequisite courses.
2. Understand the relationship between auditory anatomy/physiology and listening behaviour.
3. Understand the consequences of impairments on everyday activity and participation.
4. Become familiar with basic clinical tests and approaches to hearing loss.
5. Learn about traditional methods and current topics in hearing research.
6. Situate hearing in the broader context of Psychology.
7. Situate listening in a broader model of health.
8. Gain insight into whether or not you may be interested in a career related to hearing health.

FORMAT: Most weeks there will be two lecture/seminars and one lab-type session. The textbook will support information covered in class, but it will not be possible to succeed in the course without regular attendance in class because the content presented in class extends beyond what is covered in the textbook. There will be two tests in class. You will write a short essay based on a case study of your choice and you will present this report to the class on the last day of term. Participation in class discussion will be encouraged and students should feel free to raise questions or issues of interest that extend from the required course readings.

Course Webpage

The website associated with this course is accessible via <http://portal.utoronto.ca>

Note: You don't need to create a new login for Blackboard; it already knows who you are. You just need your UTORid and password. This is the same login that gets you onto the wireless network with your laptop, and the same one that you use to check your email. If you're confused about your UTORid or don't remember your password, go to: <https://www.utorid.utoronto.ca/>

In order to access course material, monitor course information, and view your grades you must log into Blackboard. If you have any general questions regarding Blackboard, please visit the following help site:

<http://www.portalinfo.utoronto.ca/content/information-students>

Submitting Work

Term work must be submitted by the assigned date by the method explained on the assignments. Assignment instructions will be posted on Blackboard. Usually, you will submit assignments electronically using UTM Submit so that the date and time of submission can be recorded in the university computer system. Assignments will be due at a date and time when a class is scheduled. **In the event of a UTM computer problem**, you must hand in a hardcopy of the assignment to the Instructor during class on the due date, but an electronic copy must also be provided on UTM Submit as soon as possible in any case. You are responsible for ensuring that you have uploaded the correct document(s) and that they are readable. If you wish to receive comments on your assignments then in addition to your electronic submission you must also give the instructor or TA a hardcopy in class on or before the due date. You are NOT encouraged to leave assignments at the PUMP room, so this option for submitting work should only be used if there is a UTM computer problem and you are unable to come to class; if you deliver an assignment to the PUMP room then you must send an email to the instructor and TA on or before the due date informing them that you have done so and providing the reason for why it was not handed in during class.

Turnitin.com will be used to assist in the evaluation of the originality of some of the term work. Instructions for use of the Turnitin.com website will be provided with the assignments. The goal of this practice is to provide a high enough likelihood of discovery of any plagiarism to increase the cost/benefit ratio beyond the point where it is useful to engage in plagiarism (see section on plagiarism below and the information sheet posted on Blackboard). Note that Turnitin.com is only a tool which will assist in detecting plagiarism. In conformance to University policy (see <http://www.teaching.utoronto.ca>) the following statement is included in the syllabus: *"Normally, students will be required to submit their course essays to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site"*.

IMPORTANT COURSE POLICIES **PLEASE READ**

Missed Test Special Consideration Request Process

Students who miss a test due to circumstances beyond their control (e.g. illness or an accident) can request that the Department grant them special consideration. Students must present their case to the Department (NOT the Instructor) by submitting a request via the online Special Consideration Request form at:

<https://utmapp.utm.utoronto.ca/SpecialRequest>.

Students are to submit original supporting documentation (e.g., medical certificates, accident reports, etc.) to the Psychology Academic Counselor or drop it in the drop box located outside the Psychology office, Deerfield Hall, 4th Floor. Students have up-to one week from the date of the missed test to submit request. Late submissions will NOT be considered without a letter of explanation specifying and documenting the reasons for the lateness.

Medical certificates or physician's notes must be completed by the Physician and MUST include the statement "This Student [name] was unable to write the test on [date(s)] for medical reasons". This documentation must show that the physician was consulted within one the day of the missed term test. A statement merely acknowledging a report of illness made by the student to the physician is NOT acceptable. For further information on this procedure please see: <http://www.utm.utoronto.ca/psychology/undergraduate-studies/missed-testslate-submissions>

If you missed your test/assignment deadline for a reason connected to your registered disability, please be advised that the department will accept documentation supplied by the UTM AccessAbility Resource Centre.

IMPORTANT: The Department of Psychology verifies the authenticity of medical certificates by contacting medical offices. Students are NOT to make any changes or alteration to completed medical certificates. Students who submit forged or altered documentation are subject to severe academic penalties.

If your request is approved by the department, a make-up test will be offered within 2 weeks of the original test date. Please contact Jodie Stewart (jodie.stewart@utoronto.ca) for further information pertaining to the make-up details.

Extension of Time Special Consideration Request Process

Extensions up to and Including the Last Day of the Term:

Students who seek to be granted more time to complete their term work beyond the due date without penalty, owing to circumstances beyond their control (e.g., illness, or an accident), must do so by submitting a request directly to the Instructor for the period up to and including the last day of the term. The decision as to whether or not to apply a penalty for the specified period rests with the Instructor.

Extensions after the Last Day of the Term:

Students who seek to be granted more time to complete term work beyond the last day of the term must submit their request directly to the Department. This request covers the period following the last day of classes and ends the last day of the exam period. This is done by submitting a request via the online Special Consideration Request form at <https://utmapp.utm.utoronto.ca/SpecialRequest>.

You are advised to seek advising by the departmental Undergraduate Counsellor prior to the deadline.

Original supporting documentation (e.g., medical certificates, accident reports, etc.) must be submitted to the Psychology Academic Counselor or dropped off in the drop box located outside the Psychology office Deerfield Hall, 4th Floor. Students are expected to submit requests to the Department before the last day of the term, unless demonstrably serious reasons prevent them from doing so. In the event of an illness, medical certificates or doctor's notes must confirm that student was ill on the due date of the assignment (for a one-day extension). For a longer extension, documentation must specify the full duration during which academic work could not be carried out.

Extensions after the Examination Period:

For extensions of time beyond the examination period you must submit a petition through the Office of the Registrar. <http://www.utm.utoronto.ca/registrar/current-students/petitions>.

Penalties for Lateness

A penalty of 10% per calendar day (i.e., including week-ends and holidays, during which students are not able to submit term work) up to and including the last day of classes, will be applied by the Instructor. After the last day of classes, the penalty of 10% per calendar day will be applied by the Undergraduate Counsellor on behalf of the Department. No penalty will be assigned if request for special consideration, described above, was successful.

Academic Guidelines

It is your responsibility to ensure that you have met all prerequisites listed in the UTM Calendar for this course. If you lack any prerequisites you WILL BE REMOVED from the course up until the last day to add a course. Further information about academic regulations, course withdrawal dates and credits can be found in the University of Toronto Mississauga Calendar at: <http://www.erin.utoronto.ca/regcal/>.

You are encouraged to read this material. If you run into trouble and need advice about studying, preparing for exams, note taking or time management, free workshops and advice are available from the Robert Gillespie Academic Skills Centre at 905-828-5406.

AccessAbility Services

Students requiring academic accommodations for learning, physical, sensory, or mental health disabilities or medical conditions should contact the AccessAbility Office (2037B Davis Building), 905-828-3847.

<http://www.utm.utoronto.ca/accessability/>

Academic Honesty and Plagiarism

Honesty and fairness are considered fundamental to the university's mission, and, as a result, all those who violate those principles are dealt with as if they were damaging the integrity of the university itself. When students are suspected of cheating or a similar academic offence, they are typically surprised at how formally and seriously the matter is dealt with -- and how severe the consequences can be if it is determined that cheating did occur. The University of Toronto treats cases of cheating and plagiarism very seriously. Please take the time to review the Academic Integrity website:

<http://www.utm.utoronto.ca/academic-integrity/students>.

- Common trends in academic offences:
- Plagiarizing/concocted references
- Collaboration/unauthorized assistance
- Purchasing work
- Recycling work - "double-dipping"
- Resubmitting of altered work for re-grading
- Electronic devices (cell phones) or any unauthorized aids
- Altering medical certificates and UofT documents

From the Code of Behaviour on Academic Matters: "It shall be an offence for a student to knowingly: represent as one's own any idea or expression of an idea or work of another in any academic examination or term test or in connection with any other form of academic work, i.e. to commit plagiarism. Wherever in the Code an offence is described as depending on "knowing", the offence shall likewise be deemed to have been committed if the person ought reasonably to have known." All students must refer to this website to obtain information on what constitutes plagiarism.

<http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize>.

If questions arise after reading the material on the website, consult your instructor.

Plagiarism will not be tolerated.

Equity Statement

The University of Toronto is committed to equity and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect. As a course instructor, I will neither condone nor tolerate behaviour that undermines the dignity or self-esteem of any individual in this course and wish to be alerted to any attempt to create an intimidating or hostile environment. It is our collective responsibility to create a space that is inclusive and welcomes discussion. Discrimination, harassment and hate speech will not be tolerated. If you have any questions, comments, or concerns you may contact the UTM Equity and Diversity officer at edo.utm@utoronto.ca or the University of Toronto Mississauga Students' Union Vice President Equity at vpequity@utmsu.ca.

Academic Rights

You, as a student at UTM, have the right to:

- Receive a syllabus by the first day of class.
- Rely upon a syllabus once a course is started. An instructor may only change marks' assignments by following the University Assessment and Grading Practices Policy provision 1.3.
- Refuse to use turnitin.com (you must be offered an alternative form of submission).
- Have access to your instructor for consultation during a course or follow up with the department chair if the instructor is unavailable.
- Ask the person who marked your term work for a re-evaluation if you feel it was not fairly graded. You have up to one month from the date of return of the item to inquire about the mark. If you are not satisfied with a re-evaluation, you may appeal to the instructor in charge of the course if the instructor did not mark the work. If your work is remarked, you must accept the resulting mark. You may only appeal a mark beyond the instructor if the term work was worth at least 20% of the course mark.
- Receive at least one significant mark (15% for H courses, 25% for Y courses) before the last day you can drop a course for H courses, and the last day of classes in the first week of January for Y courses taught in the Fall/Winter terms.
- Submit handwritten essays so long as they are neatly written.
- Have no assignment worth 100% of your final grade.
- Not have a term test worth 25% or more in the last two weeks of class.
- Retain intellectual property rights to your research.
- Receive all your assignments once graded.
- View your final exams. To see a final exam, you must submit an online Exam Reproduction Request within 6 months of the exam. There is a small non-refundable fee.
- Privacy of your final grades.
- Arrange for representation from Downtown Legal Services (DLS), a representative from the UTM Students' Union (UTMSU), and/or other forms of support if you are charged with an academic offence.

Some Supplemental Readings (information about how to find these references in the library will be provided on Blackboard):

Greenberg, S. (1996). Auditory processing of speech (pp. 362-407). In Lass NJ, ed. *Principles of Experimental Phonetics*. Mosby: St. Louis.

Hartman, W. (1999). How we localize sound. *Physics Today, November*, 24-29.

Mills, J., Mills, J.H., Schmiedt, R.A., Schulte, B.A., & Dubno, J.R. (2006). Age-related hearing loss: A loss of voltage, not hair cells. *Seminars in Hearing* 27:228-236.

Noble, W. (1983). Hearing, hearing impairment, and the audible world: A theoretical essay. *Audiology*, 22, 325-338.

Pichora-Fuller, M.K. (1997). Assistive listening devices for the elderly (pp. 161-202). In R. Lubinski and J. Higginbotham (Eds.), *Communication technologies for the elderly: Vision, hearing, and speech*. Singular: San Diego, CA.

Pichora-Fuller, M.K., & Carson, A.J. (2000). Hearing health and the listening experiences of older communicators (pp. 43-74). In Mary Lee Hummert, & Jon Nussbaum (Eds.). *Communication, aging, and health: Linking research and practice for successful aging*. Lawrence Erlbaum Assoc: NY.

Pichora-Fuller, M.K. & Jamieson, J. (2012). Consequences of hearing impairment to the individual and society (pp 79-106). In V. Newton, A. Smith, & P.W. Alberti, (Eds.), *Prevention of hearing loss*. Nova Science Publishers: Hauppauge, NY.

Course Outline

Wk	Date	Topic	Main Readings	Other Readings	Assignments/Labs/Activities	Due	
1	T Sept 8	Introduction					
2	M Sept 14	WHO ICF	http://www.who.int/classifications/icf/training/icfbeginnersguide.pdf				
	M Sept 14	Soundscape	http://www.sfu.ca/~tr-uax/wsp.html	Noble	1. A Day in a Listener's Life (on your own)	S22	
	T Sep 15	Acoustics	Ch 3				
3	M Sep 21	External ear	Ch 2, 9				
	M Sep 21	HRTFs		Hartman	2. Soundscape (on your own)	S 29	
	T Sep 22	Middle ear	Ch 10				
4	M Sep 28	Inner ear & VIII CN	Ch 11				
	M Sep 28	Inner ear & VIII CN					
	T Sep 29	Immittance	Ch 7		3. Lab A (in class)	O 6	
5	M Oct 5	Audiometry	Ch 4				
	M Oct 5	Neural coding & CANS	Ch 12				
	T Oct 6	Audiometry			4. Lab B (4 th fl CCT)	O 20	
6	M Oct 12	THANKSGIVING					
	T Oct 13	TEST 1					
7	M Oct 19	Speech production					
	M Oct 19	Speech analysis					
	T Oct 20	Speech signal	http://www.fon.hum.uva.nl/praat/		5. Lab C (HG; Rm TBA – bring your own headset with microphone and earphones)	O 27	
8	M Oct 26	Outer ear pathology	Ch 9		Essay instructions given	N 30	
	M Oct 26	Middle ear pathology	Ch 10				
	T Oct 27	Sensori-neural Loss	Ch 11				
9	M Nov 2	Central pathology	Ch 12				
	M Nov 2	Speech perception		Greenberg			
	T Nov 3**	Ear protection			6. Lab D (4 th fl CCT)	N 10	
10	M Nov 9	Presbycusis		Mills et al., 2006			
	M Nov 9	Cognitive/Social links		Pichora-Fuller & Jamieson; Pichora-Fuller & Carson			
	T Nov 10	Speech in noise	Ch 5		7. Lab E(4 th fl CCT)	N 17	
11	M Nov 16	Hearing aids & Implants	Ch 14				
	M Nov 16	Assistive technologies		Pichora-Fuller 1997	video in class		
	T Nov 17	TEST 2					
12	M Nov 23	Infant hearing	Ch 7, http://www.icih.org/		video in class		
	M Nov 23	Childhood hearing loss	Ch 8		video in class		
	T Nov 24	Adult adjustment	Ch 15		In-class exercise		
13	M Nov 30	Student presentations			Essay due	N 30	

** last day to drop course is November 4th