

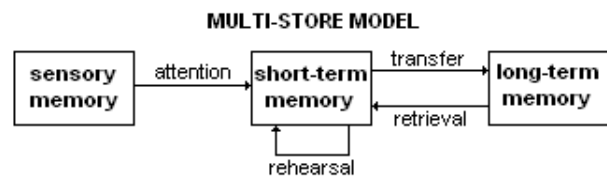
Modelling Memory

No sooner had the warm liquid mixed with the crumbs touched my palate than a shudder ran through me and I stopped, intent upon the extraordinary thing that was happening to me. An exquisite pleasure had invaded my senses, something isolated, detached, with no suggestion of its origin. And at once the vicissitudes of life had become indifferent to me, its disasters innocuous, its brevity illusory—this new sensation having had on me the effect which love has of filling me with a precious essence; or rather this essence was not in me it was me. . . . Whence did it come? What did it mean? How could I seize and apprehend it? . . . And suddenly the memory revealed itself. The taste was that of the little piece of madeleine which on Sunday mornings at Combray (because on those mornings I did not go out before mass), when I went to say good morning to her in her bedroom, my aunt Lonie used to give me, dipping it first in her own cup of tea or tisane. The sight of the little madeleine had recalled nothing to my mind before I tasted it. And all from my cup of tea.

That quotation of the *episode of the madeleine* as it has come to be known from Marcel Proust's *In Search of Lost Time* is just one of the examples of memory he uses to explore the contrast of involuntary memory with voluntary memory. The cartoonist Saul Steinberg's 1969 New Yorker cover illustration depicts another metaphor of memory—that of a *stream of consciousness*: a visitor in an art gallery is looking at a painting by Georges Braque. Above the visitor is his thought bubble containing the stream of images and ideas that is provoked by seeing the painting.

Psychology 4325n: Modelling Memory is intended as a survey of various historical and current approaches to characterizing human (and, potentially, non-human) memory and cognition. Discussion will range through topics such as what memory might be through potential types of memory (e.g., semantic, episodic) to memory systems (from one through

potentially thousands) and memory representations. There are box models, network models (including artificial neural-nets), holographic models, dual-process models, race models, signal detection models, and models called “SAM” and others called “Minerva”, and “HAL”, and “LSA” of implicit vs. explicit memories, of recall, recognition, action, biases, performance, and perception, and, as ably illustrated by Proust, of feelings of familiarity vs. active recollection.



There are no books for the course. Instead, we will explore the topic with a series of readings that will comprise the source of weekly papers you will be asked to write and the topic of the next week's discussion, and the exploration of various computer-based memory models. To the latter end, you will need access to a computer upon which you can install the latest versions of (open-source and free) software applications to run the models. To connect your computer to the displays in the AH 177, you will need an HDMI cable that connects to the video-out of your computer.

Evaluation







Almost every week of the course will have one or more assignments consisting of short “position papers” of the readings assigned for that week or computer assignments using spreadsheets, the  statistical and programming package, and possibly other applications to execute computer models of memory. All papers and assignments are weighted equally. The computer assignments will be initiated in class, along with instruction on using the various applications for running the computer models.

Table 1: Assignment-exam percentages will be converted to minimum letter-grades using this scale. Minimum letter-grade here refers to the lowest letter-grade that will be assigned on the basis of your objective performance; however, higher letter-grades may be assigned at the discretion of the instructor.

Percentage	Grade	Percentage	Grade
90-100	A+	67-70	C+
85-90	A	63-67	C
80-85	A-	60-63	C-
77-80	B+	55-60	D+
73-77	B	50-55	D
70-73	B-	<50	F

On Learning

 is a powerful statistical package and programming system. Mastering it takes time and practise—a lot of practise. The associated application, *R Studio*, is an Integrated Development Environment (IDE) that makes that task much easier, and we will do all of our explorations about  with that application. The weekly tutorials are provided to get you started, but you really must engage with  on an almost daily basis to obtain that mastery and, hence, the power it provides. That means you will have to explore it on your own time, using the internet, the  web-site, the many supplementary resources available there, and not just use it to do the minimum required by the weekly tutorials. To that end, *it is required that each student has ready access to a computer on which the latest version of  and R Studio, L^AT_EX (and other associated packages) can be installed, and accessed frequently.*

Assignments

Assignments will be submitted to the class (that is, the instructors and the other students in the class)

through the Blog function of Moodle. In addition to submitting your own assignment, you will be responsible for commenting on the assignments of others in the class. Details will be discussed in class.

Assignments are to be done at your convenience, and posted at designated times (usually one week after the work is assigned). These assignments will involve short essays, comment and opinion regarding a focal reading for that week, often accompanied by supplementary readings, and/or the output and discussion of the various computer models of memory. The readings (or links to them, or instructions on how to obtain them) will be available on the Moodle web-site (<http://moodle.uleth.ca>) for the course.

Although we strongly encourage you to work together in groups, the work you subsequently submit *must be your own*. It is an academic offence to submit someone else's work as your own. Please see section 4 of Academic Offences, Student Discipline Policy—academic offences of the University Calendar for details.

Class Times

Classes are scheduled from January 12, 2017 to April 6, 2017 for 6:00-8:50 pm, Thursdays in AH 177.