

The Psychology of Time

Psychology 220
Spring 2020
Haverford College

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Office Hours: M, W 8:00-9:00 am, and by appt.

Course Description: Time is often referred to as “the tacit dimension” within psychology because unlike other types of perception, it is not directly available to any sensory organ but can only be apprehended through change and the dynamic flow of environmental events. And yet despite its ephemeral nature, time is a dimension that has a significant impact upon a wide variety of psychological behavior. The intent of this course is to examine some of the ways in which this occurs.

From a structural perspective, it can be demonstrated that events in the world around us display a high degree of temporal organization at all levels of analysis. Many of the body’s physiological processes are entrained to the circadian day-night cycle and the pattern of sleep/wakefulness which, in turn, influences many behaviors and our overall level of functioning. In addition, many of the events we frequently encounter display a spatial array that is structured in and over time. Music, speech, body movements, and walking gaits are among the many events in which the sequence of notes, words, or actions unfold with a characteristic rhythm and tempo over a given time span. This particular arrangement not only influences how an event is perceived and remembered, but also the overall accuracy with which the event’s velocity and total duration are subsequently judged. Beyond this more micro-level, temporal patterning can also be identified within more global and social frameworks of life. The types of activities we perform in everyday existence vary in cyclic patterns over the course of a day, week, and year and thereby provide an organizational scheme that can be used for both scheduling and memory & cognition purposes. Different cultures have different conceptualizations of time which can be reflected in the types of metaphors used to describe time as well as the overall pace of life.

Another dimension which exerts a major influence upon everyday behavior is temporal perspective and one’s relative orientation toward the past, present, and future. Many clinical psychologists argue that this orientation is central to one’s mental well-being and the degree of ego strength displayed in coping with life’s difficulties. Indeed, it has been found that disturbances in temporal perspective are correlated with both delinquent and criminal behavior and certain forms of mental illness.

Lastly, the neural substrates of different types of temporal behavior will be examined. In general, the mechanisms mediating circadian-driven behaviors are quite different from those governing the internal clock and sensitivity to an event’s duration and overall velocity. This is perhaps most apparent in the analysis of timing disorders due to certain diseases and brain trauma that affect certain areas of the cerebral cortex.

Course Objectives:

Becoming familiar with contemporary theories and research in the psychological study of time

Enhancing one’s ability to critically evaluate empirical research and to consider alternative explanations for a given phenomenon

Developing the ability to integrate and synthesize multiple readings from the past literature into a coherent framework that can then be:

Effectively communicated to others through written and oral means

Lecture Outline

I. Overview

- a. Various manifestations of psychological time
- b. Brief history of time-keeping - psychological impact of clocks

Readings:

Andrewes, W.J. (2006). A chronicle of timekeeping. *Scientific American*, 16, 46-55.

McGrath, J.E. & Tschan, F. (2004). Temporal aspects of individual behavior. In J.E. Grath & F. Tschan, *Temporal matters in social psychology*. (pp. 27-44). Washington, DC: American Psychological Association Press.

II. Rhythm

- a. Chronobiology: Circadian and biological rhythms
 1. rhythmicities of sleep – different stages, why do we need it?
 2. studies of time isolation: free running rhythms and zeitgebers
 3. chronotypes: larks vs. owls
 4. neural basis of biological clock
 5. practical applications of circadian research
 - jet lag
 - workers' shifts
 - medicine and pharmacology
 - cyclic variations in suicide
 - sleep disorders
 - SAD
- b. Rhythm in Environmental Events: Basic principles of rhythmic organization and production
 1. grouping rules
 2. accents
 3. biases in rhythm perception
 4. modality differences
- c. An example of rhythmic organization within environmental events:
 1. locomotion and walking gaits; biological motion
- d. Some cognitive functions of rhythm
- e. Environmental manifestations of synchrony – fireflies, menstrual cycles, and Pokeman

Class Presentation: Circadian disturbances within mental illness

Readings:

Eagleman, D. (2015). Selected chapter from *Brain and Behavior: A Cognitive Neuroscience Perspective*. NYC: Oxford University Press.

Chapter 10 – Sleep

Foster, R.G. & Kreitzman, L. (2004). Selected chapters from *Rhythms of Life: The Biological Clocks that Control the Daily Lives of Every Living Thing*. New Haven, CT: Yale University Press.

Chapter 11 – Sleep and Performance

Chapter 12 – Sad Shifts

Chapter 13 – Time to Take Your Medicine

Phillips, M. L. (2009). Of owls, larks, and alarm clocks. *Nature*, 458, 142-144.

Alward, R. R. (1988). Are you a lark or an owl on the night shift? *The American Journal of Nursing*, 88, 1336-1339.

Wright, K. (2006). Times of our lives. *Scientific American*, 16, 26-33.

Zimmerman, J. & Richardson, D. (2016). Verbal synchrony and action dynamics in large groups. *Frontiers in Psychology*, December 2016, volume 7, article 2034.

III. Role of Rhythm in Language and Social Cognition

- a. Temporal structure of speech and language
 1. Rhythmic structure in the articulation of phonemes, words, sentences
 2. Effects on cognitive behavior
- b. Temporal coordination in conversational interaction
 1. Turn-taking behavior
 2. Interactional synchrony

3. Speaker accommodation and congruence
 4. Applications to doctor-patient interactions
- c. Social impressions derived from temporal qualities of the voice

Class Presentation: Temporal metaphors and referential time.

Readings:

Krauss, R.M. & Chiu, C. (1998). Language and social behavior. In D.T. Gilbert, S.T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology*. (pp. 41-88). McGraw-Hill: New York. **Only need to read from page 58 (beginning with section on “Language and Social Perception”) to page 67 (up to section on “Language and Gender”).**

Giles, H. & Wadleigh, P.M. (2008). Accommodating nonverbally. In L.K. Guerrero & M.L. Hecht (Ed.), *The Nonverbal Communication Reader, Third Edition*. (pp. 491-502). Long Grove, IL: Waveland Press.

Bernieri, F.J. & Rosenthal, R. (1991). Interpersonal coordination: Behavior matching and interactional synchrony. In R.S. Feldman & R. Rime (Eds.), *Fundamentals of nonverbal behavior*. (pp. 401-432). Cambridge University Press: NY, NY.

Boroditsky, L. & Ramscar, M. (2002). The roles of body and mind in abstract thought. *Psychological Science*, 13, 185-189.

IV. Tempo

- a. Limits on perception - a range of tempo sensitivity
- b. Cognitive processing of tempo information:
 1. tempo preferences
 2. memory for tempo information
 3. tempo perception - some applications to errors in automobile driving
- c. Relationship between time and space - kappa/tau effects; tempo illusions
- d. Internal tempo
- e. Cross-cultural variations in the pace of life

Class Presentation: Acceleration of time due to technology and its effects on psychological behavior

Readings:

Ono, A. (1976). A study of the literature on the interrelations between subjective time, distance, and speed. *Tohoku Psychologica Folia*, 35, 1-11.

Levine, R. (1996). Cultural differences in the pace of life. In H. Helfrich (Ed.) *Time and Mind*. Hogrefe & Huber Publishers: Gottingen.

Selected chapters from: Gleick, J. (1999). *Faster: The acceleration of just about everything*. Vintage Books: New York

1. Life as a Type A
2. Pacemaker
3. On Your Mark, Get Set, Think!
4. Eat and Run
5. How Many Hours Do You Work?

Carr, N. (2010). *The web shatters focus, rewires brains*. *Wired*, 18, 1-6.

Carr, N. (2010). Does the internet make you dumber? *Wall Street Journal*.

Rosa, H. (2010). Full speed burnout? From the pleasures of the motorcycle to the bleakness of the treadmill: the dual face of social acceleration. *International Journal of Motorcycle Studies*, 6(1).

V. Event Duration

- a. Research paradigm - prospective vs. retrospective
- b. Behavioral measures of event duration: tasks and measures of accuracy and directional bias
- c. Models of Experienced Duration - Prospective Timing
 1. Internal Clock
 2. Attentional Gate - impact of attentional variables and arousal
- d. Models of Remembered Duration - Retrospective Timing
 1. Memory-Based Models:
 - Storage Size Hypothesis
 - Cognitive Change Hypothesis
 2. Shortcomings and Limitations
 3. Structural Remembering Approach - the influence of event structure,

- learning, and expectancies; predicted duration estimates
- 4. A modified version of the attentional gate model

Class Presentation: Temporal judgments in sports.

Readings:

- Zakay, D. & Block, R. (1997). Temporal cognition. *Current Directions in Psychological Science*, 6, 12-16.
- Buehler, R., Griffin, D. & Peetz, J. (2010). The planning fallacy: Cognitive, motivational, and social origins. *Advances in Experimental Social Psychology*, 43, 1-62.
- Hancock, P.A. & Weaver, J.L. (2005). On time distortions under stress. *Theoretical Issues in Ergonomics Science*, 6(2), 193-211.
- Wallisch, P. (2008). An odd sense of timing. *Scientific American Mind*, 37-43.

VI. Temporal Perspective

- a. Components of experiential time within the self
- b. The multidimensional nature and measurement of temporal perspective
- c. Correlates of future-orientation
- d. Changes across the life-span
- e. Disturbances of temporal perspective due to:
 - 1. hypnosis
 - 2. delinquency
 - 3. mental illness

Class Presentation: Psychological distance and temporal construal.

Readings:

- Boyd, J.N. & Zimbardo, P.G. (2005). Time perspective, health, and risk taking. In A. Strathman & J. Joireman (Eds.), *Understanding behavior in the context of time*. Erlbaum Press.
- Epstude, K. & Peetz, J. (2012). Mental time travel: A conceptual overview of social psychological perspectives on a fundamental human capacity. *European Journal of Social Psychology*, 42, 269-275.
- Melges, F.T. (1982). Time and the future in psychopathological spirals. From *Time and the Inner Future*. John Wiley: NY.
- Lieberman, N. & Trope, Y. (2008). The psychology of transcending the here and now. *Science*, 322, 1201-1205.

VII. Role of Time in Autobiographical Memory

- a. Autobiographical memory and its relationship to other memory systems
- b. The temporal organization of personal memories:
 - 1. The use of temporal reference frames in remembering
 - 2. The "bump" of autobiographical memory
 - 3. Childhood amnesia
- c. Event dating:
 - 1. Factors influencing the accuracy of event dating
 - 2. Reconstructive processes through temporal schemas and landmarks
 - 3. Public memories of news events
- d. Prospective memory

Class Presentation: The development of temporal concepts in children.

Readings:

- Friedman, W.J. (2004). Time in autobiographical memory. *Social Cognition*, 22, 591-605.
- Rubin, D. (2002). Autobiographical memory across the lifespan. In P. Graf & N. Ohta (Eds.) *Lifespan development of human memory*. (pp. 159-184). MIT Press.
- Larsen, S.F., Thompson, C.P. & Hansen, T. (1996). Time in autobiographical memory. In D. Rubin (Ed.). *Remembering our past*. (pp. 129-156). Cambridge University Press: NY, NY.
- Wilson, A. E. & Ross, M. (2003). The identity function of autobiographical memory: Time is on our side. *Memory*, 11, 137-

Wilson, A.E., Gunn, G.R., & Ross, M. (2009). The role of subjective time in identity regulation. *Applied Cognitive Psychology*, 23, 1164-1178.

VIII. Society's Influence on Experienced Time

- a. Monochronic vs. Polychronic Societies
- b. Social time from three cultural perspectives:
 1. Linear Model
 2. Circular Model
 3. Procedural Model
- c. Utilitarian concept of time – time as an economic resource
- d. Applications to consumer research
- e. Time as embedded within social organizations
 1. Various forms of temporal regularity within social systems
 2. The stratification of self time, interaction time, and institutional time
- f. Perceptions of protracted duration within social events

Class Presentation: Time and art.

Readings:

Radden, G. (2004). The metaphor TIME AS SPACE across languages. In N. Baumgarten et al. (Eds.), *Übersetzen, interkulturelle Kommunikation, Spracherwerb und Sprachvermittlung—Das Leben mit Mehreren Sprachen: Festschrift für Juliane House zum 60. Geburtstag* (pp. 225-238). Bochum: Aks-verlag.

Lewis, J.D. & Weigert, A.J. (1981). The structures and meanings of social time. *Social Forces*, 60, 432-462.

Ezell, C. (2006). Clocking cultures. *Scientific American*, 74-75.

Brislin, R. & Kim, E. (2003). Cultural diversity in people's understanding and uses of time. *Applied Psychology: An International Review*, 52, 363-382.

Levine, R.V. (2015). Time and culture. <http://nobaproject.com/modules/time-and-culture>

IX. Neural Bases of Temporal Behavior

- a. Interval timing vs. circadian timing
- b. Neural correlates of the Internal Clock/Attentional Gate Model
 1. Basal Ganglia - timing and force of movements
 2. Substantia Nigra - dopamine receptors and the pacemaker; Parkinson's disease
 3. Cerebellum - movement timing, accuracy, and coordination; temporal production and perception
 4. Frontal Cortex - planning, attentional resources, temporal ordering, prospective judgments
 5. Hippocampus - retrospective duration judgments, anterograde amnesia, Korsakoff's syndrome

Class Presentation: Temporal behavior of animals.

Readings:

Damasio, A.R. (2002). Remembering when. *Scientific American*, 287, 66-73.

Behusi, C.V. & Meck, W.H. (2005). What makes us tick? Functional and neural mechanisms of interval timing. *Nature Reviews: Neuroscience*, 6, 755-765.

Wright, K. (2006). Times of our lives. *Scientific American*, 16, 26-33.

Sacks, O. (1990). The lost mariner. From *The Man Who Mistook His Wife for a Hat and Other Clinical Tales*.

Sacks, O. (2004). Speed: Aberrations of time and movement. *The New Yorker*, August 23, 2004.

Grading Criteria:

Classroom Participation and Discussion	10%
Exam I	25%
Class Presentation	15%
Exam II	25%
Final Paper	25%

Course Requirements

I. Class Presentation

Each of you will assemble in small groups and be required to give an in-class presentation on a topic designed to provide greater breadth to an area discussed in class. You should plan on speaking for 30 min. and rely on a Powerpoint presentation (which I will then post on Moodle so that it is available to everyone). Each person in the group is expected to speak and so you should allocate the half hour in an equitable fashion. I've provided a set of presentation topics on the syllabus and will try to ensure that everyone receives a topic that is acceptable to them.

II. Paper

In addition to the presentation, you will also be required to write a paper for the course. You are free to choose any topic that interests you as long as it involves some aspect of temporal behavior. It could be a topic that was never discussed, or a topic that was addressed in class but explored from a different perspective. In either case, the paper should be around 10-15 pages and rely on the APA style of referencing. Most of the paper should serve as a review of the relevant literature but the last 2-3 pages should provide your own thoughts and evaluation (e.g. critiques of the literature; ideas for future research). Your paper will be due on **Wednesday, April 1**.

III. Exams

The two exams comprise 50% of your grade and consist of short essay questions. Each exam is non-cumulative and only covers material since the previous exam. They will be administered in class on those dates designated on the schedule. Extensions are only granted under extreme circumstances or bona fide medical emergencies, and must be requested prior to the exam.

Academic Support and Accommodations: Please contact me as soon as possible if you are having difficulties in the course. There are also many resources on campus available to you as a student, including the Office of Academic Resources [HYPERLINK "https://www.haverford.edu/OAR" Office of Academic Resources](https://www.haverford.edu/OAR), the Writing Center [HYPERLINK "https://www.haverford.edu/writing-center" Writing Center](https://www.haverford.edu/writing-center), and the Office of Access and Disability Services [HYPERLINK "https://www.haverford.edu/access-and-disability-services" Access and Disability Services](https://www.haverford.edu/access-and-disability-services).

Haverford College is committed to providing equal access to students with a disability. If you have (or think you have) a learning difference or disability – including mental health, medical, or physical impairment, please contact the Office of Access and Disability Services (ADS) at [HYPERLINK "https://www.haverford.edu/access-and-disability-services" Access and Disability Services](https://www.haverford.edu/access-and-disability-services). The Coordinator will confidentially discuss the process to establish reasonable accommodations.

Students who have already been approved to receive academic accommodations and want to use their accommodations in this course should share their verification letter with me and also make arrangements to meet with me as soon as possible to discuss their specific accommodations. Please note that accommodations are **not retroactive** and require advance notice to implement.

It is a state law in Pennsylvania that individuals must be given advance notice if they are to be recorded. Therefore, any student who has a disability-related need to audio record this class must first be approved for this accommodation from the Coordinator of Access and Disability Services and then must speak with me. Other class members will need to be aware that this class may be recorded.

Phone and Laptop Etiquette: Please turn off or silence your cell phones, and no texting, surfing the web, or using social media during class time. Such activities are not only rude in the context of a classroom but distracting to you, your neighbors, and me. Laptops are permitted for note taking only.

Academic Integrity

• All your work for this course needs to accord with Haverford's Honor Code: [HYPERLINK "http://honorcouncil.haverford.edu/the-code/" http://honorcouncil.haverford.edu/the-code/](http://honorcouncil.haverford.edu/the-code/)

• All the work you turn in, whether for a grade or not, must be your own and all sources in all media must be accurately documented.

• When you document sources, use APA format as your guide. See [HYPERLINK "https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/reference_list_electronic_sources"](https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/reference_list_electronic_sources)

- You should not turn in writing, in part or in whole that you have submitted or will submit in another course.
- You should not turn in writing that you have published, as for instance, on a blog. You can, however, cite and document a brief portion of your blog or any other writing you've published.

Psy 220 – Psychology of Time
Schedule of Lectures and Presentations
Spring, 2020

- Jan. 22 – Overview and History of Time-keeping – read Andrewes (2006); McGrath & Tschan (2004)
27 - Rhythm – read Chapter 10 on Sleep; Foster - Chapter 11 on Sleep and Performance;
Alward (1988); Phillips (2009)
29 - Rhythm – Read Foster – Chapters 12, 13; Wright (2006)
- Feb. 3 – Rhythm – read Zimmerman & Richardson (2016)
5 – Rhythm - **Presentation on Circadian Disturbances in Mental Illness**
10 – Time and Language – Read Giles & Wadleigh (2008); Bernieri & Rosenthal (1991)
12 – Time and Language – Read Krauss & Chiu (1998)
17 – Time and Language – **Presentation on Temporal Metaphors** – read Boraditsky &
Ramscar (2002)
19 - Tempo – Read Ono (1976)
24 - Tempo – Read Levine (1996); selections from Gleick (1999)
26 – Tempo – **Presentation on Tempo and Technology** – read Carr (2010), Rosa (2010)
- March 2 - Duration – Read Zakay & Block (1997); Hancock & Weaver (2005)
4 - Duration – Read Wallisch (2008); Buehler, et. al. (2010)
9 – Spring Break
11 – Spring Break
16 - Duration – **Presentation on Timing in Sports**
18 – **EXAM ONE**
23 – Temporal Perspective – Read Boyd & Zimbardo (2005); Epstude & Peetz (2012)
25 – Temporal Perspective – Read Melges (1982)
30 – Temporal Perspective – Read Liberman & Trope (2008); **Presentation on Psychological
Distance and Temporal Construal**
- April 1 – Time and Autobiographical Memory – Read Rubin (2002); Wilson & Ross (2003); Wilson,
et. al (2009) **PAPER DUE**
6 – Time and Autobiographical Memory – Read Larsen & Thompson (1996); Friedman (2004);
Presentation on Development of Time – read Ezzell (2006)
8 – Social Time – Read Levine (2015); Brislin & Kim (2003)
13 – Social Time – Read Lewis & Weigert (1981)
15 – Social Time – **Presentation on Time and Art** – read Radden (2004)
20 – Neural Mechanisms – Read Behusi & Meck (2005); Wright (2006); Damasio (2002)
22 – Neural Mechanisms – Read Sacks (1990, 2004)
27 – Neural Mechanisms – **Presentation on Animal Time**
29 – **EXAM TWO**

Presentation Topics

Circadian Disturbances

Temporal Metaphors Tempo and Technology

Time and Sports

Temporal Construal Development of Time

Time in Art

Animal Time