LIN 891: Laboratory Phonology
Fall 2024

Instructor

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Meetings

by Regular Off. hours:
Tuesday, 3:00 - 4:45pm
(or) by appointment

Class schedule / location

Thursday	12:40 - 3:30pm	12C Berkey Hall

Note 1: It's best to email me a day or two BEFORE you meet with me so that I can let you know if I am free at the time you plan to come.

Course goals

This course is intended to introduce students to issues related to understanding the relationship between phonology and phonetics. One main focus of the course is to get students up-to-speed on important issues in probing phonological representations through laboratory phonology techniques related to speech production. A second important aim of the course is to develop new experiments/ideas that will lead to a clarification of the issues that are currently being debated in the literature.

Required readings

- All the required readings are listed in the syllabus. Almost all of the papers are accessible online and via the MSU library. I will upload any inaccessible papers to D2L.

- Some very useful video repositories

    (a) Abralin Youtube lectures
    (b) SIGTYP Youtube lectures

Course requirements

Attendance

Students are expected to attend and participate in all classes. It is important to attend all classes since materials that are not covered in the readings may be presented. Some materials maybe be sent via email, but you should also check with me or a classmate regarding material you may have missed.

Readings

Students are expected to do all the assigned readings. You must do the reading before the day it is discussed in class. This will make the lectures easier to follow, and you will be in a better position to ask questions about things that might not be clear to you. It will also help with your homework.

Class presentation

You should pick papers on a single topic and present them - these papers will become the basis of your final research.

In-class discussion

Please come to class having read the assigned readings and having thought about the relevant issues carefully.

Research during the course

General critique/squib: This short paper (5-6 pages, single spaced) should be related to a proof, simulations or a model for some relevant aspect of linguistics. You will further identify relevant papers and any issues with the previous literature and propose a modification. Ideally, you will consider potential predictions of the modification, and then discuss how the predictions might address the issue you raised.

Final paper: It must be on a topic that we have covered in class, and should be an extension of work presented in class. In the paper, you will present original proofs/simulations/modelling that is an extension of the research that you identified in the *General critique/squib*. The format should closely follow the guidelines discussed in *Some notes on writing papers*.

Grading

Grading weight		Grading scale	
Class presentations	10%	4.0	93% or higher
In-class discussion	15%	3.5	85% - 92.9%
Research squib presentation/discussion	10%	3.0	77% - 84.9%
Research squib	15%	2.5	69% - 76.9%
Final Paper Presentation	10%	2.0	61% - 68.9%
Final Paper	40%	1.5	53% - 60.9%
Total	100%	1.0	45% - 52.9%
		0.0	44.9% or lower

AI Policy

You are welcome to use Chat-GPT or equivalents as you see fit. I will say that I am deeply uncomfortable at an ethical level — the basis for such AI systems is a vast amount of knowledge on the internet that was meant to be free and not used for such commercial purposes. I usually assume an implicit Creative Commons license (see here for more) applies to such freely available knowledge. By using Chat-GPT, I strongly believe we are violating the original hopes and desires of the people who created the content; therefore, I steadfastly refuse to use it. Having said that, my claim is not a legal one but an ethical one, so you need to decide for yourself if using such systems is appropriate.

Spartan code of honor academic pledge

As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing the endeavor to build personal integrity in all that I do.

Important dates

There is always a possibility that dates/deadlines are changed. If so, I will make sure that you have enough time to plan accordingly.

Item	Date
Research squib topic presentation	October 17 (Thursday)
Research squib due	October 24 (Thursday)
No class	October 24 (Thursday)
Final presentations	Dec 9 (Mon), 2:00 – 5:00pm
Final paper due	During finals week (TBD)

Papers/chapters to read

Note, the list is subject to variation. Furthermore, it is not a week-by-week list, as some of these topics may spill over to multiple weeks.

Background

1. Basic co-articulation

    1 Benguerel, André-Pierre and Helen A Cowan (1974). "Coarticulation of upper lip protrusion in French." *Phonetica* 30.1, pp. 41–55.

    2 Kent, Raymond D and Fred D Minifie (1977). "Coarticulation in recent speech production models." *Journal of phonetics* 5.2, pp. 115–133.

    Extra reading:

    1 Moll, Kenneth L and Raymond G Daniloff (1971). "Investigation of the timing of velar movements during speech." *The Journal of the Acoustical Society of America* 50.2B, pp. 678–684.

2. Basic co-articulation

    1 Gelfer, Carole E, Fredericka Bell-Berti, and Katherine S Harris (1989). "Determining the extent of coarticulation: Effects of experimental design." *The Journal of the Acoustical Society of America* 86.6, pp. 2443–2445.

    2 Solé, Maria-Josep (1992). "Phonetic and Phonological Processes: The Case of Nasalization." *Language and Speech* 35.1-2, pp. 29–43. DOI: 10.1177/002383099203500204. eprint: https://doi.org/10.1177/002383099203500204. URL: https://doi.org/10.1177/002383099203500204.

    3 Shaw, Jason A., Karthik Durvasula, and Alexei Kochetov (2019). "The Temporal Basis of Complex Segments." In: *Proceedings of the 19th International Congress of Phonetic, Sciences (ICPhS 2019)*. Ed. by Sasha Calhoun, Paola Escudero, Marija Tabain, and Paul Warren. Canberra, Australia: Australasian Speech Science and Technology Association Inc., pp. 676–680. URL: https://assta.org/proceedings/ICPhS2019/papers/ICPhS_725.pdf.

    Extra reading:

    1 Boyce, Suzanne E., Rena A. Krakow, and Fredericka Bell-Berti (1991). "Phonological Underspecification and Speech Motor Organisation." *Phonology* 8.2, pp. 219–236. ISSN: 09526757, 14698188. URL: http://www.jstor.org/stable/4420035.

    2 Keating, Patricia A. (1990). "The window model of coarticulation: articulatory evidence." In: *Papers in Laboratory Phonology*. Ed. by John Kingston and Mary E.Editors Beckman. Vol. 1. Papers in Laboratory Phonology. Cambridge University Press, pp. 451–470. DOI: 10.1017/CBO9780511627736.026.

    3 Byrd, Dani (1996). "A Phase Window Framework for Articulatory Timing." *Phonology* 13.2, pp. 139–169. ISSN: 09526757, 14698188. URL: http://www.jstor.org/stable/4615480.

4 Bell-Berti, Fredericka and Katherine S Harris (1982). "Temporal patterns of coarticulation: Lip rounding." *The Journal of the Acoustical Society of America* 71.2, pp. 449–454.

5 Coleman, John (2003). "Discovering the acoustic correlates of phonological contrasts." *Journal of Phonetics* 31.3. Temporal Integration in the Perception of Speech, pp. 351–372. ISSN: 0095-4470. DOI: https://doi.org/10.1016/j.wocn.2003.10.001. URL: https://www.sciencedirect.com/science/article/pii/S0095447003000615.

6 Xu, Yi (1997). "Contextual tonal variations in Mandarin." *Journal of Phonetics* 25.1, pp. 61–83. ISSN: 0095-4470. DOI: https://doi.org/10.1006/jpho.1996.0034. URL: https://www.sciencedirect.com/science/article/pii/S0095447096900340.

Theoretical viewpoints

3. Language-specific phonetics to account for language variation

1 Clumeck, H (1976). "Patterns of soft palate movements in six languages." *Journal of Phonetics* 4, pp. 337–351.

2 Manuel, Sharon Y (1990). "The role of contrast in limiting vowel-to-vowel coarticulation in different languages." *The Journal of the Acoustical Society of America* 88.3, pp. 1286–1298.

Extra reading:

1 Cohn, Abigail C (2007). "Phonetics in phonology and phonology in phonetics." *Working Papers of the Cornell Phonetics Laboratory* 16, pp. 1–31.

2 Cohn, Abigail C (2006). "Is there gradient phonology?" *Gradience in grammar*, pp. 25–44.

3 Zhang, Jie (2004). "The role of contrast-specific and language-specific phonetics in contour tone distribution." In: *Phonetically Based Phonology*. Ed. by Bruce Hayes, Robert Kirchner, and DoncaEditors Steriade. Cambridge University Press, pp. 157–190.

4 Flemming, Edward (2011). "The grammar of coarticulation." *La coarticulation: Indices, direction et representation*, pp. 189–212.

5 Huffman, Marie K (1987). "Timing of contextual nasalization in two languages." *The Journal of the Acoustical Society of America* 82.S1, S115–S116.

4. Another way to understand the Phonology-Phonetics divide: bring in some (more) space and time into phonological representations (gestures).

1 Browman, Catherine P. and Louis H. Goldstein (1989). "Articulatory gestures as phonological units." *Phonology* 6.2, pp. 201–251. DOI: 10.1017/S0952675700001019.

2 Goldstein, Louis (2011). "Back to the past tense in English." *Representing language: Essays in honor of Judith Aissen*, pp. 69–88.

Extra reading:

1 Browman, Catherine P. and Louis H. Goldstein (1990). "Tiers in articulatory phonology, with some implications for casual speech." In: *Papers in Laboratory Phonology*. Ed. by John Kingston and Mary E.Editors Beckman. Vol. 1. Papers in Laboratory Phonology. Cambridge University Press, pp. 341–376. DOI: 10.1017/CBO9780511627736.019.

2 Saltzman, EL, A Lofqvist, and S Mitra (2000). "Clocks" and "glue"—Global timing and intergestural cohesion." *Papers in laboratory phonology V*, pp. 88–101.

3 Iskarous, Khalil and Marianne Pouplier (n.d.). "As time goes by: A critical appraisal of space and time in Articulatory Phonology in the 21st century" (). URL: https://sail.usc.edu/~lgoldste/ArtPhon/Papers/Iskarous_Pouplier.pdf.

4 Purse, Ruaridh (2019). "The Articulatory Reality of Coronal Stop 'Deletion'." In: *Proceedings of the 19th International Congress of Phonetic, Sciences (ICPhS 2019)*. Ed. by Sasha Calhoun, Paola Escudero, Marija Tabain, and Paul Warren. Canberra, Australia: Australasian Speech Science and Technology Association Inc., pp. 1595–1599. URL: https://assta.org/proceedings/ICPhS2019/papers/ICPhS_1644.pdf.

5. A third way to understand the Phonology-Phonetics divide: abstraction all the way down.

1 Hale, Mark, Madelyn Kissock, and Charles Reiss (2007). "Microvariation, variation, and the features of universal grammar." *Lingua* 117.4, pp. 645–665.

2 Du, Naiyan and Karthik Durvasula (2024). "Psycholinguistics and Phonology: the forgotten foundations of generative phonology." *Cambridge Elements on Phonology.*

Extra reading:

1 Volenec, Veno and Charles Reiss (2017). "Cognitive Phonetics: The Transduction of Distinctive Features at the Phonology-Phonetics Interface." *Biolinguistics* 11. URL: https://www.biolinguistics.eu/index.php/biolinguistics/article/view/509.

2 Hammarberg, Robert (1976). "The background of modern phonology." Ph.D. Dissertation. The University of Chicago.

3 Hammarberg, Robert (1982). "On redefining coarticulation." *Journal of Phonetics* 10.2, pp. 123–137.

Within Segments

6. URs, epenthesis, and excrescence

1 Gouskova, Maria and Nancy Hall (2009). "Acoustics of epenthetic vowels in Lebanese Arabic." *Phonological argumentation: Essays on evidence and motivation*, pp. 203–225.

2 Smith, Kaylin Marie (2020). "Distinguishing different levels of representation in the acoustics: a case study in Scottish English epenthesis." Ph.D. Dissertation. East Lansing, MI, USA: Michigan State University. URL: https://d.lib.msu.edu/etd/48746.

Extra reading:

1 Gafos, A. (2002). "A grammar of gestural coordination." *Natural Language and Linguistic Theory* 20.2, pp. 269–337. DOI: https://doi.org/10.1023/A:1014942312445.

2 Karlin, Robin (2022). "Finnish inserted vowels: a case of phonologized excrescence." *Nordic Journal of Linguistics* 45.1, pp. 49–79. DOI: 10.1017/S033258652100007X.

3 Feldscher, Danny (Cara) (2017). *Excrescent stops in American English*. Comprehensive paper, Michigan State University.

7. "Long segments"

1 Lahiri, Aditi and Jorge Hankamer (1988). "The timing of geminate consonants." *Journal of Phonetics* 16.3, pp. 327–338. ISSN: 0095-4470. DOI: https://doi.org/10.1016/S0095-4470(19)30506-6. URL: https://www.sciencedirect.com/science/article/pii/S0095447019305066.

2 Ratko, Louise, Michael Proctor, and Felicity Cox (2023). "Gestural characterisation of vowel length contrasts in Australian English." *Journal of Phonetics* 98, p. 101237. ISSN: 0095-4470. DOI: https://doi.org/10.1016/j.wocn.2023.101237. URL: https://www.sciencedirect.com/science/article/pii/S0095447023000268.

3 Boyce, Suzanne E (1990). "Coarticulatory organization for lip rounding in Turkish and English." *The Journal of the Acoustical Society of America* 88.6, pp. 2584–2595.

Extra reading:

1 Strycharczuk, Patrycja, Sam Kirkham, Emily Gorman, and Takayuki Nagamine (2024). *Towards a dynamical model of English vowels. Evidence from diphthongisation.* URL: https://www.researchgate.net/publication/383700995_Towards_a_dynamical_model_of_English_vowels_Evidence_from_diphthongisation.

2 Local, John and Adrian P Simpson (1999). "Phonetic implementation of geminates in Malayalam nouns." *Proceedings of the 14th International Congress of Phonetic Sciences*, pp. 595–598.

3 Kawahara, Shigeto (2015). "The phonetics of sokuon, or geminate obstruents." *Handbook of Japanese phonetics and phonology*, pp. 43–78.

4 Munhall, Kevin G, David J Ostry, and Avraham Parush (1985). "Characteristics of Velocity Profiles of Speech Movements." *Journal of Experimental Psychology: Human Perception and Performance* 11.4, pp. 457–474. DOI: https://doi.org/http://dx.doi.org/10.1037/0096-1523.11.4.457.

5 Ostry, David J and Kevin G Munhall (1985). "Control of rate and duration of speech movements." *The Journal of the Acoustical Society of America* 77.2, pp. 640–648.

6 Adams, Scott G, Gary Weismer, and Raymond D Kent (1993). "Speaking rate and speech movement velocity profiles." *Journal of Speech, Language, and Hearing Research* 36.1, pp. 41–54.

7 Roon, Kevin, Philip Hoole, Chakir Zeroual, Shihao Du, and Adamantios Gafos (2021). "Stiffness and articulatory overlap in Moroccan Arabic consonant clusters." *Laboratory Phonology* 12.1, p. 8. DOI: https://doi.org/10.5334/labphon.272.

8 Fuchs, Susanne, Pascal Perrier, and Mariam Hartinger (2011). "A critical evaluation of gestural stiffness estimations in speech production based on a linear second-order model."

Beyond Segments

8. Intersegment timing

1 Liu, Zirui, Yi Xu, and FF Hsieh (2020). "Coarticulation as synchronised sequential target approximation: An EMA study." In: *Proceedings of the Annual Conference of the International Speech Communication Association, INTERSPEECH*. Vol. 2020. International Speech Communication Association (ISCA), pp. 1381–1385.

2 Liu, Zirui, Yi Xu, and Feng-fan Hsieh (2022). "Coarticulation as synchronised CV co-onset–Parallel evidence from articulation and acoustics." *Journal of Phonetics* 90, p. 101116.

3 Durvasula, Karthik and Yichen Wang (2023). "Revisiting CV timing with a new technique." In: *Proceedings of the 20th International Congress of Phonetic, Sciences (ICPhS 2023)*. Ed. by Radek Skarnitzl and Jan Volín. Prague, The Czech Republic: Guarant International, pp. 2284–2288. URL: https://drive.google.com/file/d/15U2l2y4_-9lyZAgmiccQYXYj9zBi_CAu/view.

9. Syllables in terms of gestural co-ordination

1 Hermes, Anne, Doris Mücke, and Martine Grice (2013). "Gestural coordination of Italian word-initial clusters: The case of 'impure s'." *Phonology* 30.1, pp. 1–25. ISSN: 09526757. DOI: 10.1017/S095267571300002X.

2 Sotiropoulou, Stavroula, Mark Gibson, and Adamantios Gafos (2020). "Global organization in Spanish onsets." *Journal of Phonetics* 82, p. 100995. ISSN: 0095-4470. URL: http://www.sciencedirect.com/science/article/pii/S0095447020300863.

Extra reading:

1 Browman, Catherine P. and Louis H. Goldstein (1988). "Some Notes on Syllable Structure in Articulatory Phonology." *Phonetica* 45, pp. 140–155. DOI: 10.1159/000261823.

2 Nam, Hosung (2007). "Syllable-level intergestural timing model: Split-gesture dynamics focusing on positional asymmetry and moraic structure." *Laboratory phonology* 9.2007, pp. 483–506.

3 Byrd, Dani (1995). "C-Centers revisited." *Phonetica* 52, pp. 263–282. DOI: 10.1159/000262183.

4 Turk, Alice and Stefanie Shattuck-Hufnagel (2020). *Speech timing: implications for theories of phonology, speech production, and speech motor control*. Vol. 5. Oxford University Press, USA.

5 Iskarous, Khalil and Marianne Pouplier (n.d.). "As time goes by: A critical appraisal of space and time in Articulatory Phonology in the 21st century" (). URL: https://sail.usc.edu/~lgoldste/ArtPhon/Papers/Iskarous_Pouplier.pdf.

6 Marin, Stefania and Marianne Pouplier (2010). "Temporal organization of complex onsets and codas in American English: Testing the predictions of a gestural coupling model." *Motor Control* 14.3, pp. 380–407.

7 Bradley, Travis G (2006). "Spanish complex onsets and the phonetics-phonology interface." In: *Optimality-theoretic studies in Spanish phonology.* Ed. by Fernando Martinez Gil and Sonia Colina. Amsterdam: John Benjamins, pp. 15–38.

8 Sotiropoulou, Stavroula, Mark Gibson, and Adamantios Gafos (2020). "Global organization in Spanish onsets." *Journal of Phonetics* 82, p. 100995. ISSN: 0095-4470. URL: http://www.sciencedirect.com/science/article/pii/S0095447020300863.

10. Poly-subconstituent Shortening

1 Katz, Jonah (2012). "Compression effects in English." *Journal of Phonetics* 40.3, pp. 390–402. ISSN: 0095-4470. DOI: https://doi.org/10.1016/j.wocn.2012.02.004. URL: https://www.sciencedirect.com/science/article/pii/S0095447012000149.

2 Munhall, Kevin, Carol Fowler, Sarah Hawkins, and Elliot Saltzman (1992). ""Compensatory shortening" in monosyllables of spoken English." *Journal of Phonetics* 20.2, pp. 225–239. ISSN: 0095-4470. DOI: https://doi.org/10.1016/S0095-4470(19)30624-2. URL: https://www.sciencedirect.com/science/article/pii/S0095447019306242.

Extra reading:

1 Farnetani, Edda and Shiro Kori (1986). "Effects of syllable and word structure on segmental durations in spoken Italian." *Speech communication* 5.1, pp. 17–34.

2 Fowler, Carol A (1981). "A relationship between coarticulation and compensatory shortening." *Phonetica* 38.1-3, pp. 35–50.

11. Resyllabification

1 Jiménez-Bravo, Miguel and José María Lahoz-Bengoechea (Dec. 2023). "Durational cues to resyllabification in Spanish." *Loquens* 10.1-2, e099. DOI: 10.3989/loquens.2023.e099. URL: https://loquens.revistas.csic.es/index.php/loquens/article/view/111.

2 Strycharczuk, Patrycja and Martin Kohlberger (2016). "Resyllabification reconsidered: On the durational properties of word-final/s/in Spanish." *Laboratory Phonology: Journal of the Association for Laboratory Phonology.*

Extra reading:

1 McCarthy, John J. (1993). "A Case of Surface Constraint Violation." *Canadian Journal of Linguistics/Revue canadienne de linguistique* 38.2, pp. 169–195. DOI: 10.1017/S0008413100014730.