ENG 685: Symbolic Computational Linguistics
Spring 2024
01E 27045 R 4:30 – 7:10 pm, DTH305
01W-27046 online

Instructor:
Dr. Christian F. Hempelmann
Office: Hall of Languages 226
Office Hours:
online workdays 10am–10pm
office T 11am-1pm (Dallas), R 2-4pm (Commerce)
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Please, click on the following link to access A&M-Commerce Covid 19 Information:
https://new.tamuc.edu/coronavirus/

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings:
Required textbooks:
- none

Texts:
- Jurafsky, Daniel and James H. Martin. 2023. *Speech and Language Processing.* 3rd Ed draft. Prentice-Hall. Selected chapters. https://web.stanford.edu/~jurafsky/slp3/
- Manning, Christopher D. and Hinrich Schütze. 1999. *Foundations of Statistical Natural Language Processing.* MIT. Selected chapters. Online.
- Nirenburg, Sergei and Victor Raskin. 2004. *Ontological Semantics.* MIT. Selected chapters. Online.

Optional additional reading:
- Further materials will be made available online.

Course Description:
This course provides a general introduction to symbolic computational linguistics, the study of linguistics-based computational systems that understand and generate human language. This class will cover fundamental concepts and techniques, such as lexical and ontological semantics, word sense disambiguation, syntactic and semantic parsing, and generation. Throughout the class, students will be exposed to recent research that connects the concepts learned to exciting research questions that are practically motivated and application-oriented. Prerequisites: ENG 683.

Course Objectives:

1. Students will become familiar with basic concepts in computational linguistics and the way of linguistically thinking about an issue through readings from texts, in-class discussions, and exercises done as homework and in class. This objective will be measured through exercises and contributions to a final project and exam.
2. Students will become active participants in the course, not only in staying current with readings and other assignments, but also in sharing their understanding of the material as assessed by weekly exercises and contributions to in-class discussions.

Student Learning Outcomes

Students who have successfully participated in this class will

1. understand the history of the discipline and its subdisciplines, in particular in relation to the fields of linguistics—phonology, syntax, semantics—and other fields of science;
2. have hands-on knowledge of theories and algorithms required to process natural language;
3. grasp the crucial differences between natural and artificial languages;
4. be able to apply this knowledge to real-world issues, theoretically and practically;
5. read scientific texts on these issues;
6. do guided research and in a topic in computational linguistics.

COURSE REQUIREMENTS

Instructional Methods, Activities, and Assessments

Readings and Topics

Many of the readings for this course will come from Jurafsky and Martin (2023). We will begin by reading introductory chapters, continue by exploring issues in the history of the discipline and the main problems it has faced, and finally discuss selected theories and topics in computational linguistics with the help of the readings and current research of the instructor. These topics include, human-computer interface design, voice recognition and production, machine translation, data mining, web search technology, computational humor, information security and assurance, and artificial intelligence. These readings from other sources will be made available on eCollege and as links to the webpages of their authors. Read all assigned readings closely before class and be prepared to discuss them in class.

Exercises and Final Project

Throughout the semester we will do a number of smaller graded (plus, check, minus) exercises, some in class, most as homework. Assignments have to be handed in on time and are dropped one letter grade for each day they are late, unless there is a documented emergency. The final project for this class will be a guided literature review on a topic in computational linguistics, a programmed solution to a real-world problem in NLP, or a solid practical and theoretical involvement in the Tolkien Corpus Project. After we have discussed the basics of the field and looked at a number of applications, you will write a proposal for your project (participation). After the proposal has been approved, you will produce a draft, which will be the basis of a conference with the instructor. The final project (participation) will be due at the end of the semester.

Computers

Computer literacy, as well as a little programming (or a lot, if you want to) is part of this course. Apart from in-class writings, all assignments must be printed. Save everything you

write. Make backup copies. Losing a file is no fun and no excuse for missing an assignment.
Much of our communication will be by e-mail, and I usually send e-mails after every class. It is university policy that we all check our e-mail account at least once per weekday and respond within 24h, if a response is required. If you send me e-mail, include the course number and the project in the subject line. There will be an eCollege shell, where materials, including this syllabus, and announcements will be posted and where assignments can be exchanged.

Attendance and Participation

In the face-to-face section, you don't want to miss class! It will affect your performance and your grade. Attendance is taken. If you are not there, you cannot get feedback, participate in the discussion (one percent down for every miss after the third one), and hand-in assignments. So be there! Missing an appointment we have set is an absence. For an excused miss, and thus the possibility not to lose points, you have to let me know in advance. If you miss a class, you are responsible to find out what was going on in class. Participation facilitates your understanding of the issues we'll discuss in this class. A positive attitude and active participation are important to succeed in this class.

Grading Policy

If you have completed all assignments by their due dates, in particular the midterm and final, and satisfied the attendance requirements, and all other requirements stated in this specific or the departmental syllabus, your grade for this course will be determined as follows:

A	≥ 90%	assignments, exercises	30%
B	89-80%	final project	60%
C	79-70%	attendance, attitude, participation	10%
D	69-60%		
F	< 59%		

Attendance Policy

Students are responsible for attending class and keeping a log of their attendance. Please note that this means that no excuse will be accepted for failure to comply with the class requirements. No make-up quizzes will be given or late assignments accepted. Students needing particular attention should notify the instructor during the first week. If you miss a class you are responsible to receive the information you missed or you have to be prepared for surprises.

Note that this schedule is purely tentative and provided as a rough idea of how we will distribute class time. Changes can and will be made.

Tentative Schedule

Note that this schedule is purely tentative and provided as a rough idea of how we will distribute class time. Changes can and will be made.

week 1
intro general
intro NLP

week2
language for non-linguists
edit distance

week 3
Bayes
Markov

week 4
NLP pipelines

week 5
temporal cohesion
computational humor

week 6
vectors

week 7
WordNet
concept nets

week 8
ontologies I

week 9
ontologies II

week 10
Cyc, etc.

week 11
links to "AI"

week 12
presentations
wrap-up

TECHNOLOGY, COURSE AND UNIVERSITY PROCEDURES/POLICIES

TECHNOLOGY REQUIREMENTS

Browser support

D2L is committed to performing key application testing when new browser versions are released. New and updated functionality is also tested against the latest version of supported browsers. However, due to the frequency of some browser releases, D2L cannot guarantee that each browser version will perform as expected. If you encounter any issues with any of the browser versions listed in the tables below, contact D2L Support, who will determine the best course of action for resolution. Reported issues are prioritized by supported browsers and then maintenance browsers.

Supported browsers are the latest or most recent browser versions that are tested against new versions of D2L products. Customers can report problems and receive support for issues. For an optimal experience, D2L recommends using supported browsers with D2L products.

Maintenance browsers are older browser versions that are not tested extensively against new versions of D2L products. Customers can still report problems and receive support for critical issues; however, D2L does not guarantee all issues will be addressed. A maintenance browser becomes officially unsupported after one year.

Note the following:

- Ensure that your browser has JavaScript and Cookies enabled.
- For desktop systems, you must have Adobe Flash Player 10.1 or greater.
- The Brightspace Support features are now optimized for production environments when using the Google Chrome browser, Apple Safari browser, Microsoft Edge browser, Microsoft Internet Explorer browser, and Mozilla Firefox browsers.

Desktop Support

Browser	**Supported** Browser **Version(s)**	**Maintenance** Browser **Version(s)**
Microsoft® Edge	Latest	N/A
Microsoft® Internet Explorer®	N/A	11
Mozilla® Firefox®	Latest, ESR	N/A
Google® Chrome™	Latest	N/A
Apple® Safari®	Latest	N/A

Tablet and Mobile Support

Device	**Operating System**	Browser	**Supported** Browser **Version(s)**
Android™	Android 4.4+	Chrome	Latest
Apple	iOS®	Safari, Chrome	The current major version of iOS (the latest minor or **point** release of that major version) and the previous major version of iOS (the latest minor or **point** release of that major version). For example, as of June 7, 2017, D2Lsupports iOS 10.3.2 and iOS 9.3.5, but not iOS 10.2.1, 9.0.2, or any other version. Chrome: Latest version for the iOS browser.
Windows	Windows 10	Edge, Chrome, Firefox	Latest of all browsers, and Firefox ESR.

- You will need regular access to a computer with a broadband Internet connection. The minimum computer requirements are:
    - 512 MB of RAM, 1 GB or more preferred
    - Broadband connection required courses are heavily video intensive
    - Video display capable of high-color 16-bit display 1024 x 768 or higher resolution

- You must have a:
    - Sound card, which is usually integrated into your desktop or laptop computer
    - Speakers or headphones.

- *For courses utilizing video-conferencing tools and/or an online proctoring solution, a webcam and microphone are required.

- Both versions of Java (32 bit and 64 bit) must be installed and up to date on your machine. At a minimum Java 7, update 51, is required to support the learning management system. The most current version of Java can be downloaded at: JAVA web site http://www.java.com/en/download/manual.jsp

- Current anti-virus software must be installed and kept up to date.

Running the browser check will ensure your internet browser is supported.

Pop-ups are allowed.
JavaScript is enabled.
Cookies are enabled.

- You will need some additional free software (plug-ins) for enhanced web browsing. Ensure that you download the free versions of the following software:
  - Adobe Reader https://get.adobe.com/reader/
  - Adobe Flash Player *(version 17 or later)* https://get.adobe.com/flashplayer/
  - Adobe Shockwave Player https://get.adobe.com/shockwave/
  - Apple Quick Time http://www.apple.com/quicktime/download/

- At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software. Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

Brightspace Support
Need Help?

Student Support

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778 or click on the **Live Chat** or click on the words "click here" to submit an issue via email.

System Maintenance

D2L runs monthly updates during the last week of the month, usually on Wednesday. The system should remain up during this time unless otherwise specified in an announcement. You may experience minimal impacts to performance and/or look and feel of the environment.

Interaction with Instructor Statement

I aim to respond to emails within 48h and grade assignments within one week. The best way to reach me is with a professional email that includes "ENG 205" in the subject.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Students are responsible for attending class and keeping a log of their attendance. Please note that this means that no excuse will be accepted for failure to comply with the class requirements. No make-up quizzes will be given or late assignments accepted. Students needing particular attention should notify the instructor during the first week. If you miss a class you are responsible to receive the information you missed or you have to be prepared for surprises.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette http://www.albion.com/netiquette/corerules.html

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf

ADA Statement

Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce
Gee Library- Room 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu

Website: Office of Student Disability Resources and Services

http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url: http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.