# Natural Language Processing in Biomedicine

**New Course in FALL 2012**
CPH 738 (Section **004**)

TR: 9:00am - 10:15am
MDS Building, Room 206

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Division of Biomedical Informatics



Unstructured textual data arises in many disciplines including biology, medicine, social media, and literature. Even with the increased use of structured data, free text is still the main medium of everyday communication. In the critical domain of biomedicine, free text arises in the form of scientific articles that report new results and clinical narratives that form an important component of a patient's medical record. Large scale manual analysis of textual data is impractical and unsuitable to extract information and elicit important trends. Hence we have seen significant improvements in the state-of-the-art of automated language processing using computational approaches.

In this course, students will first learn the fundamentals of natural language processing from a domain independent perspective. Starting with basics of probability, students will learn how computational approaches are used in language modeling, part-of-speech tagging and parsing of free text. Students will also be introduced to the domain-specific aspects of language processing for biomedical text. They will learn about the unified medical language system (UMLS) and the associated resources provided through the national library of medicine (NLM) and how these can be used in dealing with the complexity in biomedical language processing. Students will also learn to apply language processing to tasks such as named entity recognition and text classification. Basics of the Python programming language will be discussed in the initial sessions to be later used for a few programming assignments.

**Prerequisites**: *undergraduate calculus and an undergraduate course in any programming language (Python will be covered as part of the course) OR consent of the instructor. Undergraduate students are welcome to enroll, but should consult the instructor (rvkavu2 uky edu), obtain consent, and fill out a grad course registration form.*