

Computation and **I**nformatics in **B**iology and **M**edicine
Training Program

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***The Spectrum and Integration of
Biomedical Ontologies***

Abstract:

The problem of managing comparable and consistent information occurs across the spectrum of biomedical applications from basic science biology to clinical characterizations. Furthermore, the semantic linkage of concepts expressed within genomic findings to clinical manifestations poses challenging problems in computer science, concept representation, and ontology harmonization. Historically, the problem has matured from haphazard collections of ill-formed vocabularies into a community of potentially interlocking ontologies joined by description logic mechanisms. The potential unifying principles which underpin the emerging Semantic Web may provide a basis for harmonizing biomedical concepts across the spectrum of basic science and clinical practice.

I will overview a brief history of terminology development, traditional mechanisms for using clinical terminologies, in some insights about possible mechanisms and interfaces to simplify the common challenge confronted by modern biomedical enterprises. I will frame these discussions around practical use cases seen by health providers today that bridge genomic data with clinical implications. Emerging standards within the WC3, HL7, SNOMED CT, and the ontology community will provide some direction about future development, terminology deployments, and the grand challenge of semantic integration within the biomedical communities.

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425 Henry Mall