

Bioinformaticist

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Bioinformatics:

“...science in which biology, information and computer science, coupled with information technology, combine to provide new biological and biomedical insights.”

Why a Bioinformaticist?

Need: University of Michigan biomedical researchers have expanding and evolving research and informatics needs.

My Role: Collaborate and provide new and existing services and partnerships.

Focus: Collaborate primarily in bioinformatics and computational medicine, but also primary contact for all medical school basic science departments

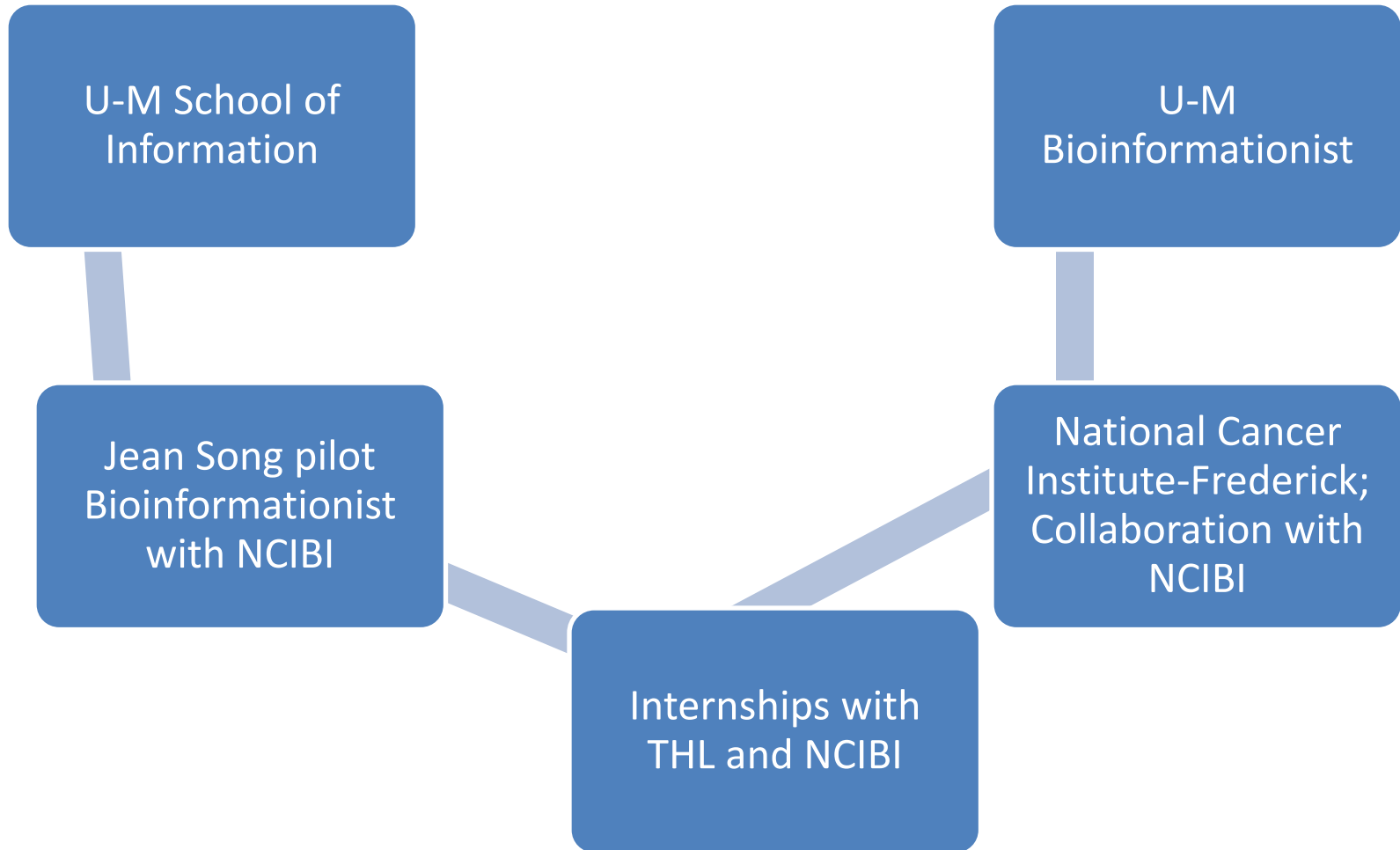
Outline

- Background
- Instruction and Instructional Resources
- Additional Services
- Questions

A scenic landscape photograph showing a deep valley with a winding road and a small settlement in the foreground. The valley is surrounded by steep, forested mountains. In the distance, more mountain ranges are visible under a bright, hazy sky. The overall color palette is dominated by blues and greens, with a soft, atmospheric quality.

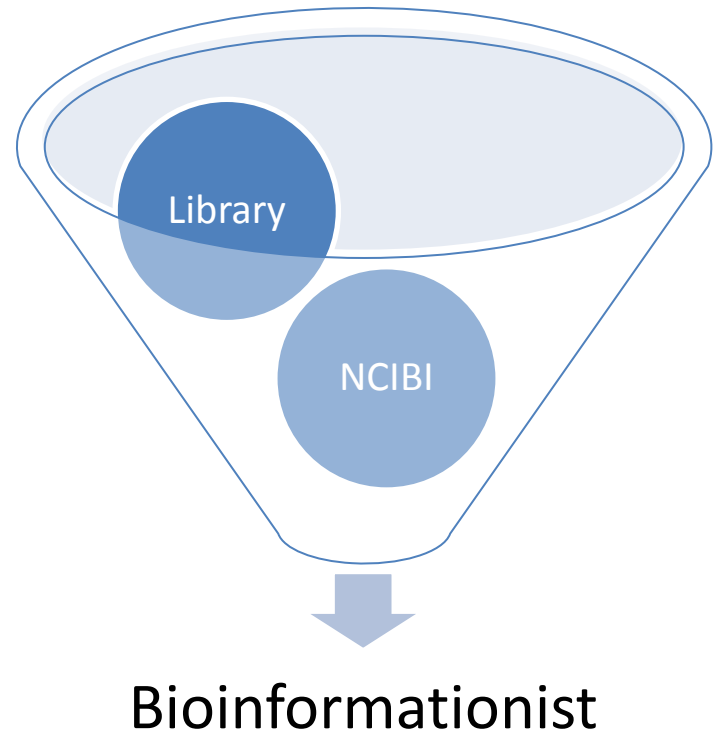
BACKGROUND

Timeline



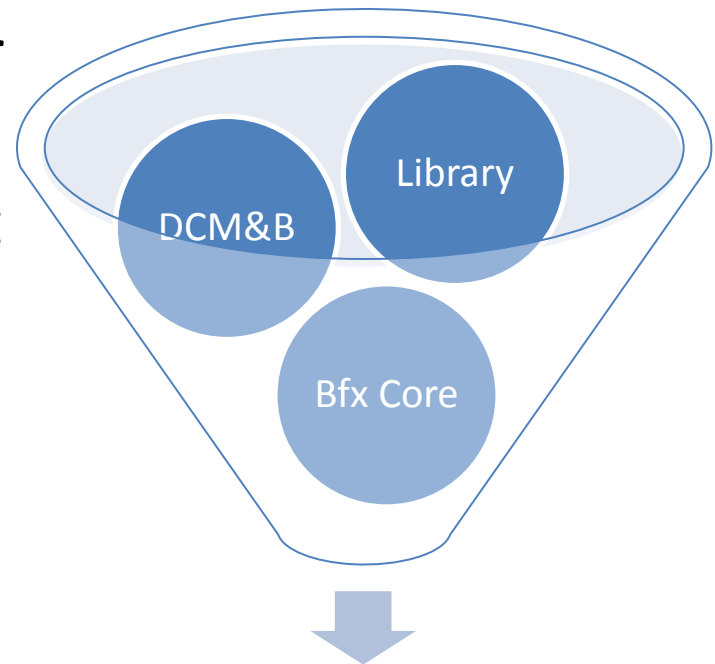
2010

- National Center for Integrative Biomedical Informatics (NCIBI)
 - NIH-funded Center
 - Developed tools for molecular biomedical research
 - Funded 50% Bioinformationist position

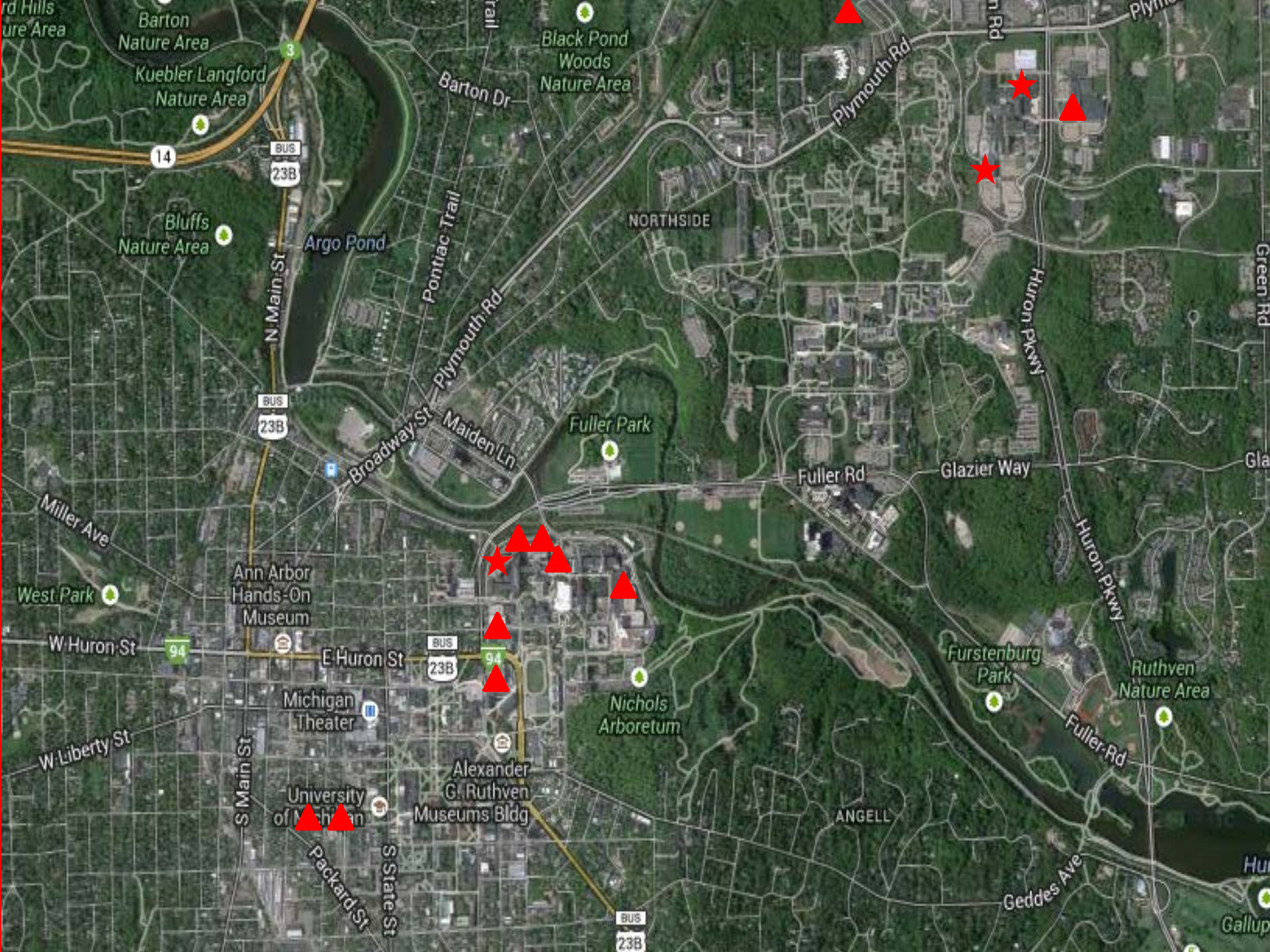


January 2012

- Department of Computational Medicine & Bioinformatics (DCM&B)
 - Medical School Department
- Bioinformatics Core
 - Medical School Biomedical Research Core Facility
- Both fund 25% of Bioinformationist position

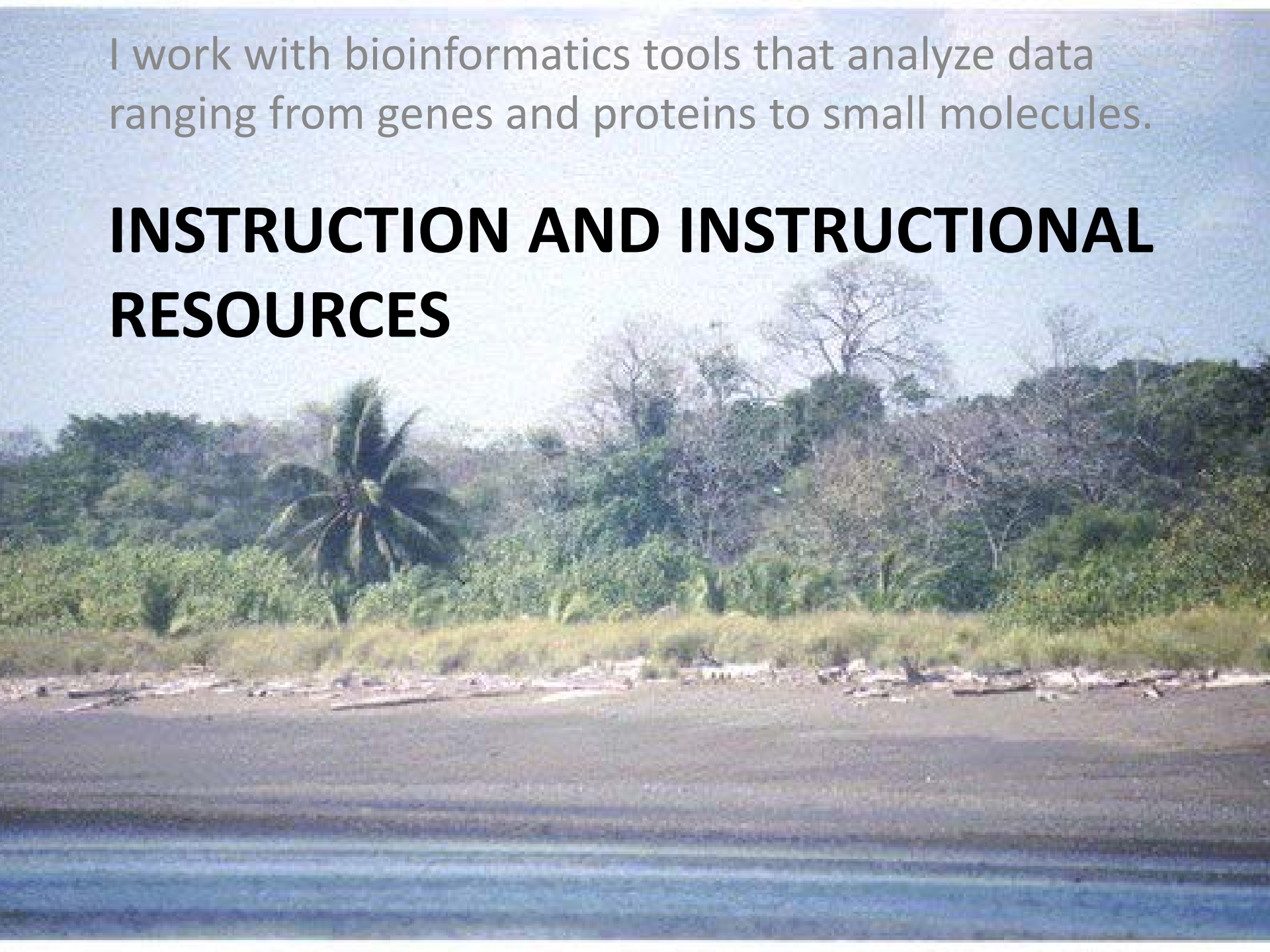


Bioinformationist



I work with bioinformatics tools that analyze data ranging from genes and proteins to small molecules.

INSTRUCTION AND INSTRUCTIONAL RESOURCES



Tools

- Cytoscape

- Free network visualization software
- <http://www.cytoscape.org/>



- MetScape

- Cytoscape app
- Metabolomics and gene expression data
- <http://metscape.ncibi.org/>



- ConceptGen

- Enrichment testing and concept mapping tool
- <http://conceptgen.ncibi.org>



Tools

- LRpath

- Gene set enrichment testing tool using logistic regression
- <http://lrpath.ncibi.org/>



- MetDisease

- Cytoscape app
- Annotates metabolic networks with MeSH disease terms and links to references
- <http://apps.cytoscape.org/apps/metdisease>



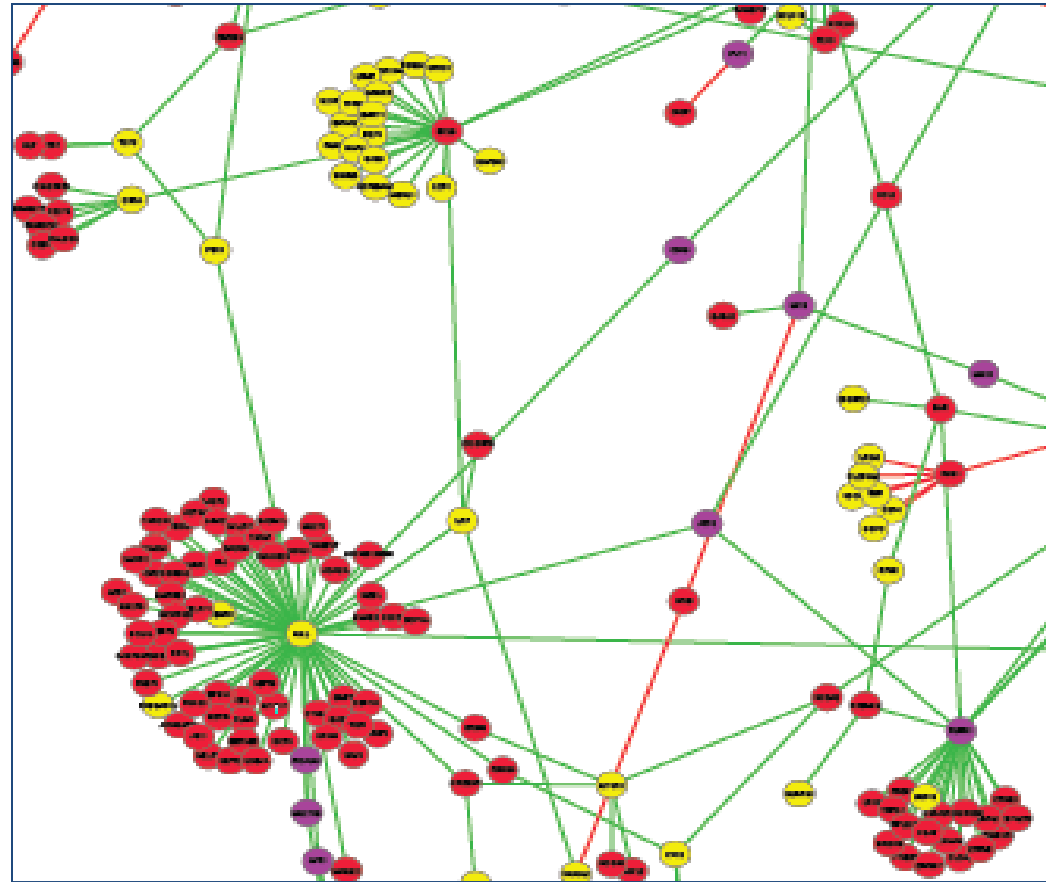
- tranSMART

- Knowledge management platform for sharing translational research data
- <http://www.transmartfoundation.org/>



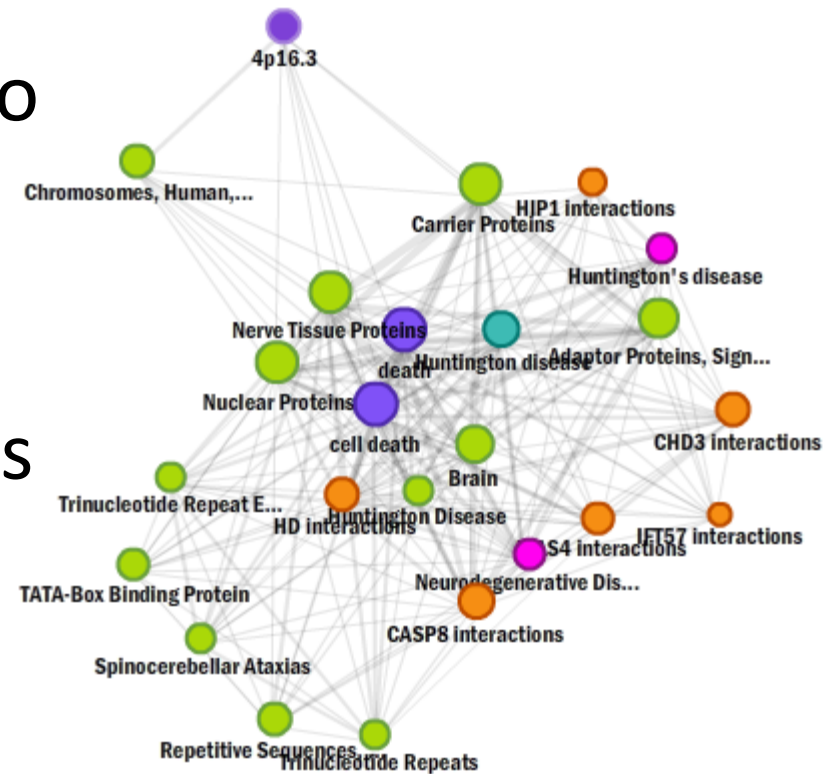
Open Training Sessions

- Mix of faculty, students, and staff
- Promotion: U-M hospital daily newsletter, DCM&B Facebook page, BRCF newsletter
- Example: Cytoscape network visualization software
 - Plugins/apps
 - Importing data; creating publishable image
 - Humanities and social sciences



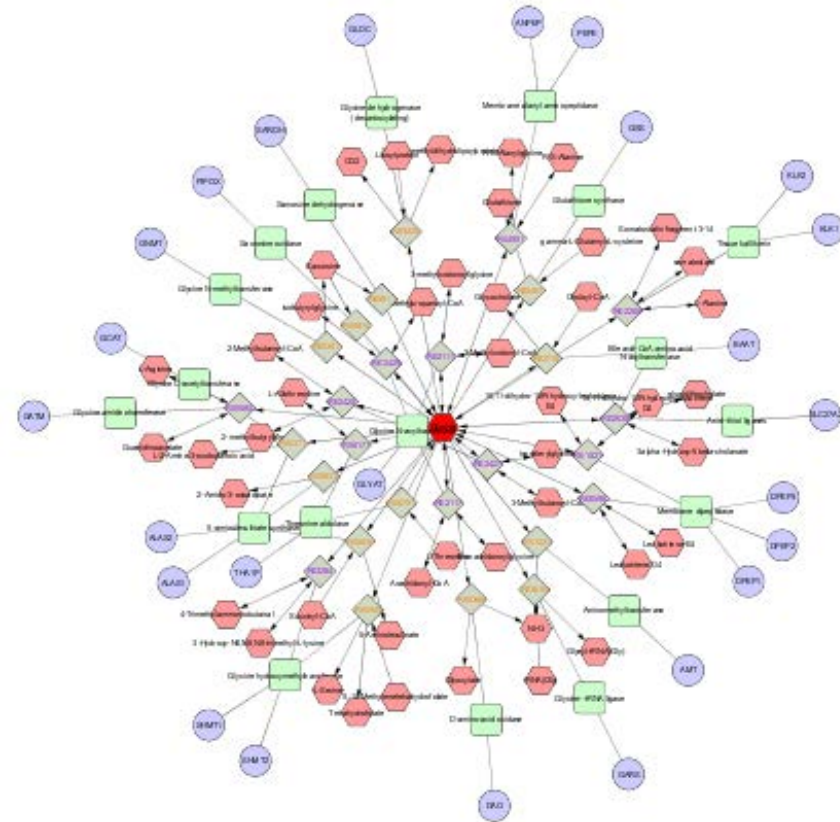
Curriculum-Based Instruction

- Cytoscape and NCBI tools in Bioinformatics foundations class (about to do for 4th year)
- tranSMART in Bioinformatics foundations class (upcoming)
- ConceptGen in Public Health Epidemiology class

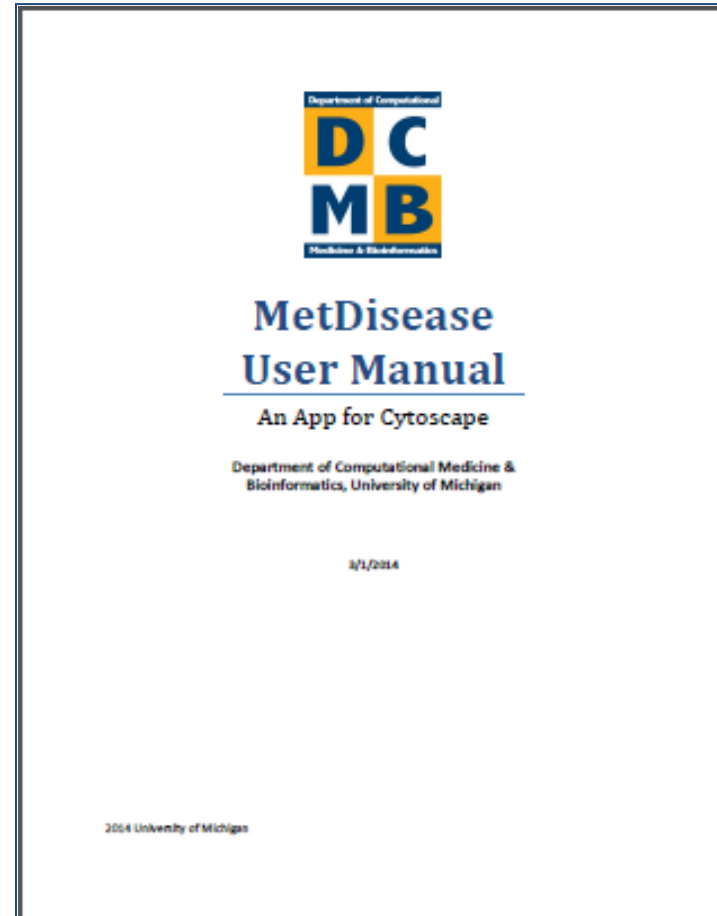


Workshops

- Bioinformatics Workshop, January 2012
 - MetScape
- International Society of Nephrologists Symposium, June 2012
 - Cytoscape and NCIBI tools
- MLA CE Course “Network Visualization Tools”, May 2013
 - Cytoscape and other network visualization tools



Documentation



- MetScape
 - Update user manual as new versions are released
- MetDisease
 - Recently completed

Video Tutorials and Webinars

- MetScape

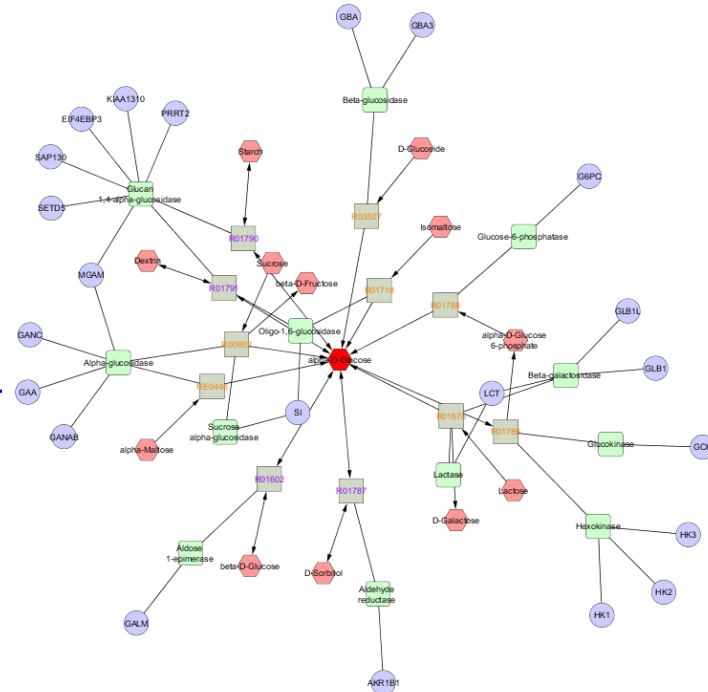
- 22+ minutes, 6 chapters
- <http://treehouse.ccmb.med.umich.edu/mst.html>

- LRpath

- 14+ minutes, 6 chapters
- <http://treehouse.ccmb.med.umich.edu/LRPath.html>

- Cytoscape Webinars

- Attendees from US and Europe



Seminar Program Coordination

- Weekly DCM&B NCIBI Tools and Technology Seminar
- Attended by faculty, students, and staff
- Venue to discuss biomedical informatics tools, technologies, and/or methodologies that are recently developed, in development, or being used by researchers.
- Find/contact/schedule speakers/promote
- Attend seminars
- Occasional presenter



&



Journal Clubs

- Attend Bioinformatics/Proteomics Journal Club AND Virology Journal Club
- Bioinformatics: Periodically presented on Library Resources and PubMed/WoS
- Virology: Presented on Library and Virology Resources



ADDITIONAL SERVICES



Resource Management

- Genomatix - bioinformatics software package
- Manage online accounts
 - Limited number of accounts
 - Handle requests from new users
 - Determine inactive users
 - Create protocols

Website Content Management

- Launch of Department
- Design improvements (ex. seminar filters)
- Core's Bioinformatics tools page

The screenshot shows the homepage of the Department of Computational Medicine & Bioinformatics at the University of Michigan Medical Center. The header features a large orange 'M' logo and the department name in orange text. Navigation links include HOME, GRADUATE PROGRAM, CCMB, BIOINFORMATICS CORE, NCIBI, and SEMINARS. A search bar and links for CONTACT US and SITE MAP are also present. The main banner image shows a laboratory setting with a large orange 'M' logo and the text 'University of Michigan Medical Center'. Below the banner, the page is divided into three columns: Home, Department of Computational Medicine and Bioinformatics, and Seminars & Events.

Department of Computational Medicine & Bioinformatics

CONTACT US | SITE MAP

HOME GRADUATE PROGRAM CCMB BIOINFORMATICS CORE NCIBI SEMINARS

University of Michigan Medical Center

Dr. Gilbert S. Omenn

Learn more >

Home

- [About Us](#)
- [Giving](#)
- [Faculty](#)
- [Fellows](#)
- [Staff](#)
- [Faculty Recruitment](#)
- [News & Announcements](#)
- [IT Support](#)

Home

Department of Computational Medicine and Bioinformatics

The U-M Department of Computational Medicine and Bioinformatics (DCM&B) was launched in January 2012. Its purpose is to create novel informatics and computationally-based methods, tools, and algorithms to extend the capabilities and results of basic and clinical research. The department consists of the Bioinformatics Graduate Program, the Center for Computational Medicine and Bioinformatics (CCMB), the Bioinformatics Core, and the National Center for Integrative Biomedical Informatics (NCIBI). DCM&B is led by Dr. Brian Athey, the department chair. - [View Core Faculty](#)

Seminars & Events

Wed, 01/15/2014 - 3:30pm
CCMB Seminar
"Enhancer biology in disease: stretch enhancers in type 2 diabetes" - Dr. Stephen Parker, NIH
Forum Hall, 4th Floor Palmer Commons

Wed, 01/22/2014 - 3:30pm
CCMB Seminar

Grant Support

- Big Data 2 Knowledge (BD2K) - NIH Center Grant Proposal
- Written into grant
- Attended meetings to discuss grant proposal
- Drafted portions of training section
- Collected and formatted references
- Worked on biosketches, resources pages, budget justification

Administrative

- Bioinformatics Core
 - Outreach
 - Schedule staffing
 - Primary person staffing tables
 - Training
 - Facilitate training sessions offered by Bioinformatics Core analysts
 - Reserve room, promote, handle registration, handle evaluation form

Bringing it All Together: tranSMART

- Knowledge management platform
 - Data analysis and data sharing
- Public/private partnership
- My role:
 - Foundation website (part of team for design and content)
 - Updated user manuals for release of v1.1
 - Reorganized wiki
 - training

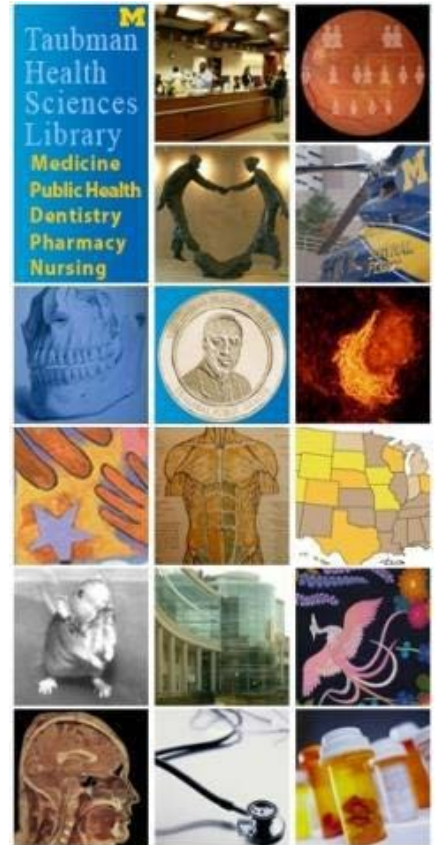
Mentor Students

- Work on projects related to bioinformatics, with faculty and staff from DCM&B
- Ex. Programming projects, assessment of NCIBI tools for integrating into tranSMART, video tutorial of ConceptGen, instruction materials for tranSMART



University Library

- Member of several library committees
- Attend library events and seminars
- Research Guides
- Meetings
- University Library initiatives





Questions?