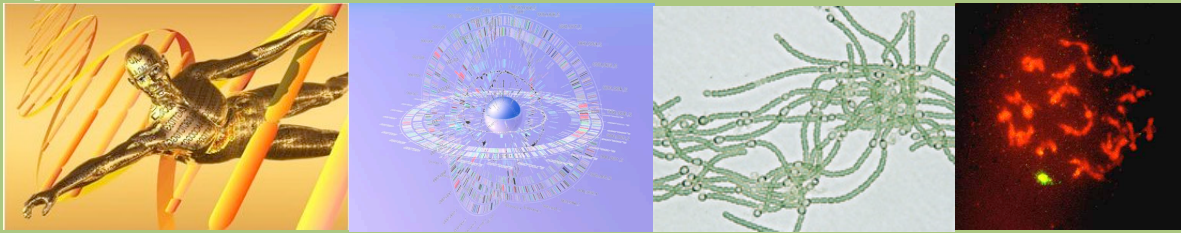


# Symposium on Biomedical Bioinformatics



Aura Soma Lava Spa, Lava Hot Springs, Idaho, October 12-13, 2007

## The 2007 Idaho State University Practical Bioinformatics Workshop

Our 3rd annual Bioinformatics Workshop will focus on the emerging applications and approaches for dealing with complex and data intensive biomedical analyses.

The Symposium on Biomedical Bioinformatics will provide an opportunity for researchers to explore recent computational approaches for understanding complex disease. The Symposium will also provide a training session for graduate students (and others) in the concepts and skills of genome analysis and genome science.

The **training session**, “Beyond default settings,” will build expertise in several commonly used bioinformatics data manipulations (aligning sequences, searching databases, building contigs, etc). Training sessions will be lead by experienced researchers and graduate students.

The **research symposium**, “Biomedical bioinformatics,” session will include talks by regional researchers using bioinformatics approaches to solve data-intensive problems. Each talk will be accompanied by breakout sessions and opportunities for collaborative discussions.

The Symposium will be held Friday and Saturday, October 12 & 13, 2007 at the beautiful **Aura Soma Lava Conference Center** in Lava Hot Springs, ID. The facility includes access to Lava’s world class hot springs and resort amenities; other local entertainment and great fishing opportunities abound. See

<http://aurasomalava.com>

Registration for Symposium is free (including meals and receptions), but space is limited. For more information about accommodations in Lava and to reserve your seat, please contact Mike Thomas ([mthomas@isu.edu](mailto:mthomas@isu.edu)) or Heath Ogden ([ogdet@isu.edu](mailto:ogdet@isu.edu)). Register at: <http://egg.isu.edu/> (see “quick links”).

## Confirmed speakers

Keynote: Michael Rosenberg, Ph.D., Arizona State U.

Chris Daniels, Ph.D., ISU

Celeste Brown, Ph.D., UI

Gong Xin Yu, Ph.D., Boise State

Balasubramanian Ganesan, Ph.D., Utah State

## Friday, October 12, 2007

Noon—5:00 p.m.: Registration & check-in

1:00 p.m.—4:30 p.m.: Bioinformatics training sessions

4:30 p.m.—6:30 p.m.: Reception

6:30 p.m.: Banquet, catered by Riverwalk Thai

7:00 p.m.: Keynote presentation: Michael Rosenberg, Ph.D., Arizona State University

## Saturday, October 13, 2007

9:00 a.m.—Noon: Symposium presentations

Noon—1:30 p.m.: Lunch, Cowboy Catering

1:30 p.m.—4:30 p.m.: Symposium presentations

4:30 p.m.: Closing remarks & discussion

5:00 p.m.—7:00 p.m.: Reception, Grecian Key

7:00 p.m.—9:00 p.m.: Roundtable discussion: Bioinformatics in the classroom.

# Symposium on Biomedical Bioinformatics

## The 2007 ISU Bioinformatics Workshop

All events will be held at the Aura Soma Lava Conference Center, 196 East Main, Lava Hot Springs, Idaho. Use of the Aura Soma Lava Conference Center is made possible by **ISU Office of Research**. Please see below for conference logistics — don't hesitate to ask one of the conference organizers for assistance. This year, the conference was organized by Drs. Michael Thomas, Heath Ogden and Mitch Day with assistance by members of the Thomas lab: Peter Hallock, Kelsey Metzger, John Thorne and Luobin Yang.

### Friday, October 12, 2007

Noon—5:00 p.m.: Registration & check-in

1:00 p.m.—4:30 p.m.: Bioinformatics training sessions — sponsored by **ISU MRCF**

4:30 p.m.—5:30 p.m.: Reception — sponsored by **Apple, Inc.**

6:00 p.m.: Banquet, catered by Riverwalk Thai — sponsored by **ISU MRCF**

7:00 p.m.: Keynote presentation: Michael Rosenberg, Ph.D., Arizona State University, "*The bioinformatic approach to exploring the evolutionary history of infectious disease causing agents: A case study of tuberculosis and leprosy*" — sponsored by **ISU Biomedical Research Institute, IBRI**

Dr. Rosenberg is an Assistant Professor of the School of Life Sciences, Arizona State University, and member of the Center for Evolutionary Functional Genomics at ASU's Biodesign Institute.

Dr. Rosenberg's research primarily involves computational evolutionary biology and bioinformatics. He is interested in understanding the processes that control diversity and similarity among organisms; this ranges across a broad array of subjects within ecology and evolution, from phylogenetics and macroevolution to molecular evolution and from single organisms to populations and ecosystems. In his work, he uses a multi-faceted approach to computational evolutionary biology, including a focus on novel statistical and computer methodology (e.g., simulation, spatial statistics, meta-analysis, and geometric morphometrics) to better describe and analyze empirical phenomena. His lab currently has two primary research foci: examining the role of sequence alignment in evolutionary analysis, and developing methods and software for biological spatial analysis. He is also involved with general research on phylogenetics, fiddler crabs, and meta-analysis.

### Saturday, October 13, 2007

9:00 a.m.—Noon: Morning Research Symposium (see schedule on following page)

Noon—1:30 p.m.: Lunch, Cowboy Catering — sponsored by **ISU College of Arts & Sciences**

1:30 p.m.—4:30 p.m.: Afternoon Research Symposium (see schedule on following page)

4:30 p.m.: Closing remarks & discussion

4:30 p.m.—6:00 p.m.: Reception, Greek cuisine — sponsored by **ISU Department of Biology**

Dinner (on your own — see organizers about Lava dining options)

7:00 p.m.—9:00 p.m.: Roundtable discussion — "Bioinformatics in the classroom"

## Friday Afternoon Training Session: “Beyond default settings”

This year’s training session is sponsored by the ISU Molecular Research Core Facility (MRCF).

Led by Dr. Mitch Day, ISU, the training session will include lectures, demonstrations and round-table discussions about planning bioinformatics projects implementing bioinformatics into your research. Bring your own laptop or use one of ours (limited number available). The *tentative* schedule (below) outlines topics that will be covered. The goal of the training session is to provide attendees with an appreciation for the use of “workflows” in bioinformatics-intensive research and to stimulate discussion. Workflows allow researchers to string together multiple processes needed for data-intensive research and are especially common in modern bioinformatics.

Time	Title	Speaker
1	Work-flows in Bioinformatics Research: Making Use of the Black Box	Mitch Day
	Basic Local Alignment Search Tool (BLAST): A Historical Perspective on a Classic Bioinformatics Problem	Luobin Yang
	Work-flow via Simulation to Test Accuracy	Heath Ogden
	<b>Discussion and Questions</b>	
2:30	What I Did On My Summer Vacation: Work-flows in Synthetic Biology	John Thorne
	Implementing Bioinformatics Work-Flows Using Taverna	Luobin Yang
	Bench-top and Laptop: Connecting Wet Lab and Bioinformatic Techniques	Kelsey Metzger
	<b>Discussion and Questions</b>	

# Saturday Research Symposium

## Morning Workshop Speakers

	Name	Affiliation	Title
9	Mike Thomas, Heath Ogden	ISU	Welcome, introductions
9:30	Celeste Brown	UI	The End of the LINE: Seeing what's not there
10	Scott Smith	BSU	Covariance Model Parameter Estimation Using RNA Thermodynamic Properties
10:30	Vern Winston	ISU	Evidence for positive selection on the surface protein of a fish virus
11	Balasubramanian Ganesan	USU	Bacterial Starvation and Nonculturability
11:30	Mitch Day	ISU	Metagenomic applications for the post-genome era

## Afternoon Workshop Speakers

	Name	Affiliation	Title
1:30	Haruo Suzuki	UI	Comparison of nucleotide composition between bacterial chromosomes and plasmids
2	Christopher Daniels	ISU	PathwayStudio as a Tool for Microarray Data Analysis
2:30	GongXin Yu	BSU	Systems Approach - a Winning Strategy in Bio-scientific Research
3	Heath Ogden	ISU	The importance of accurate DNA sequence alignments
3:30	Mike Thomas	ISU	Detecting adaptive evolution acting on alternatively spliced genes in the human genome
4	<i>tba</i>		

## Roundtable Discussion: Bioinformatics in the classroom

Saturday evening, following the reception and dinner (on your own), we'll have the opportunity for followup discussions. Only one organized activity is planned — a roundtable discussion on planning and implementing bioinformatics exercises for the college biology classroom. We'll discuss: What sorts of ways can bioinformatics be integrated into the biology curriculum? What are the educational goals of such activities? How do we know when these goals have been achieved?

# Meeting Logistics

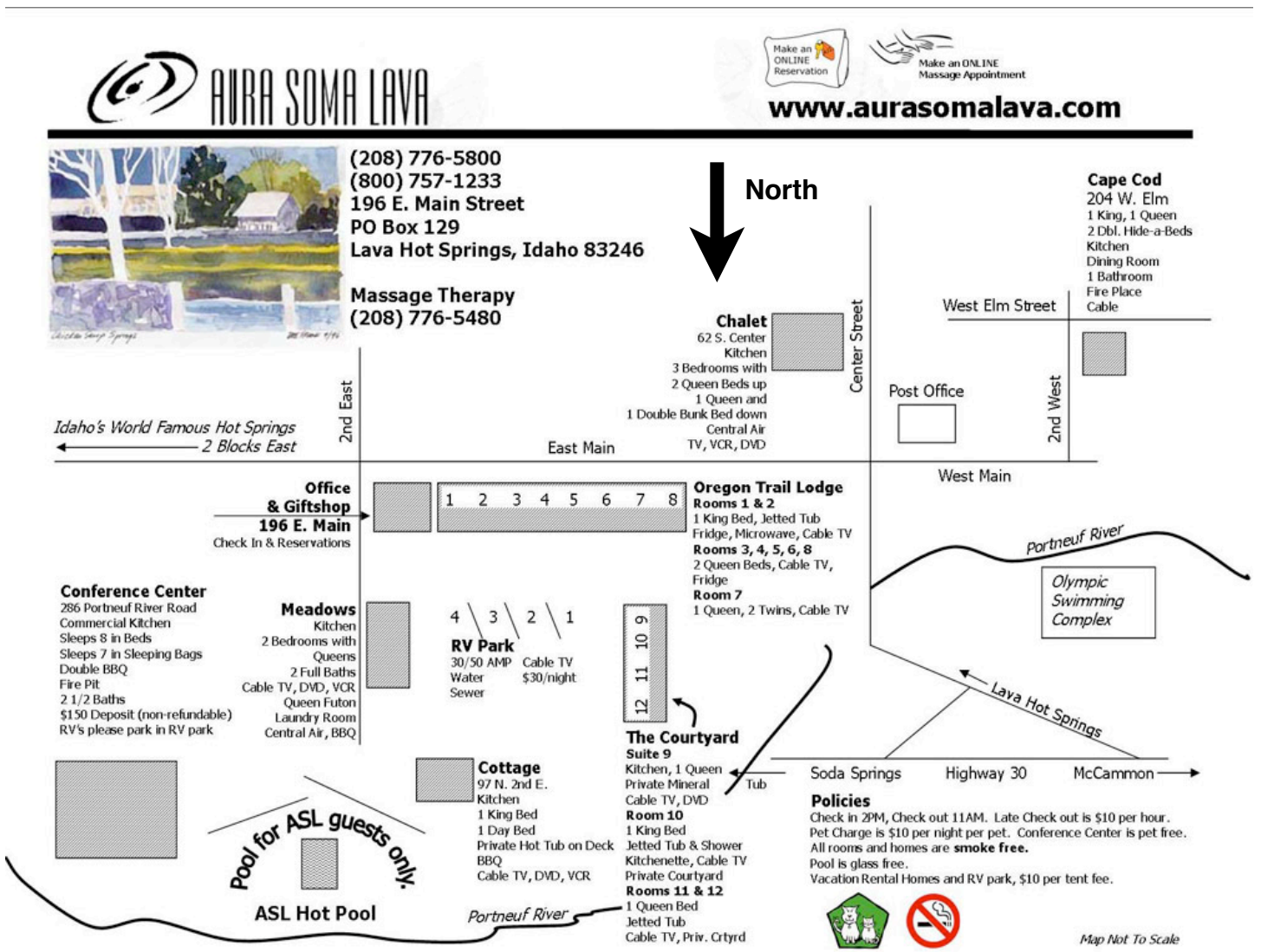
All meeting functions will be held at the **Aura Soma Lava** conference facility ("Conference Center" on the lower left of the map). Check in here first. If you have any questions or needs, please ask!

**Directions:** See map (note that North is down). You'll probably be coming from the direction of Pocatello (McCammon, on the map, is the exit from I-15 about 15mi south of Poky).

**Accommodations** have been arranged for all Symposium registrants who have requested assistance. Your room information will be provided when you check in at the Conference Center. Those staying for both nights will be lodged at the Oregon Trail Lodge (see map). Those staying for one night will be lodged at the Riverside Inn (about a block away). Please check with us first.

**Alcohol** could not be purchased for the conference due to university restrictions. However, you are welcome to bring beverages of any kind. There is a grocery store at the corner of Main and Center...

There is a **hot spring-fed pool** adjacent to the conference center. This is available for use by all conference participants at no charge. You may also use the World Famous Lava Hot Springs city facility, located about 2 blocks east of the conference center (cost is about \$5 for an all-day pass).



## About the “ISU Bioinformatics Workshop” series

The Thomas lab at ISU has organized annual workshops to showcase bioinformatics approaches used by scientists in the region and to provide hands-on training for students and faculty interested in using these techniques. For each symposium, we have arranged funding from a variety of academic and industry sources and hosted dozens of faculty and students from around the region. In gathering in an informal setting to explore bioinformatics approaches and share results of computationally-intensive research, these interactions enhance regional collaborative interactions and research potential. Here is a list of recent (and future) events.

### 2008 **Evolutionary Bioinformatics**

To be held in Sun Valley in conjunction with the IEEE Computational Intelligence in Bioinformatics and Computational Biology conference (our workshop will be a special session in the IEEE conference). Organized in collaboration with Drs. Scot Kelchner (ISU), Heath Ogden (ISU) and Scott Smith (BSU).

### 2007 **Biomedical Bioinformatics**

Featuring research talks on biomedical research approaches and applications with participants from five regional institutions. Held in Lava Hot Springs at the Aura Soma Lava conference center. Organized in collaboration with Dr. Heath Ogden (ISU).

### 2006 **Genome Annotation Jamboree**

Genome Annotation of *Acidophilium cryptum* using sequence generated by Dr. Tim Magnuson's lab). Held at ISU in the Plant Sciences Lecture Hall. Organized in collaboration with colleagues in the Magnuson lab.

### 2005 **Bioinformatics: Idahomics**

Training sessions for the use of standard bioinformatics approaches and highlighted research talks of users of those tools. Held at ISU in the College of Pharmacy. Organized in collaboration with colleagues at the USDA-Aberdeen ARS.

# 2007 ISU Bioinformatics Workshop Participants

There are over 40 participants this year, representing six different institutions.

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