

## **RDP Bioinformatics Tools Workshop**

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Intended Audiences: advanced undergraduate and graduate students, and researchers.

Location: Western Michigan University

Hours: 3:00 – 4:00 PM, April 10, 2010

Web Page: <http://rdp.cme.msu.edu>

### **Description**

This one-hour workshop will offer students opportunities to analyze Sanger and next generation (Next-Gen) rRNA data with RDP tools. Sample data will be provided for hands-on analysis.

### **Objectives**

1. To acquaint students with RDP tools and 16S rRNA analysis.
2. To introduce students to RDP Next-Gen sequencing tools.
3. To provide students with hands-on training with real sequence data.

### **Topics**

1. Browse and search public 16S rRNA sequences using RDP Hierarchy Browser:  
Search by free text and specific fields.  
By Type/Nontype, Isolate/Environmental or Quality.  
By publication, sequenced genome, or taxonomy.
2. Taxonomic assignment using RDP Classifier:  
How Classifier works.  
Interpreting Classifier results.  
The Bootstrap confidence cutoff & why it matters.
3. Find close relatives using RDP Sequence Match:  
How Sequence Match works.  
Interpreting Sequence Match results.
4. Manage your private Sanger sequences using myRDP:  
Loading your 16S sequence library.  
Automated alignment and classification.  
Phylogenetic tree analysis with RDP TreeBuilder.
5. High-throughput Next-Gen sequence processing pipeline (454, Illumina)  
Initial processing (barcode matching, primer trimming, quality score filtering)  
Taxonomic versus Clustering approaches.  
Alignment and Clustering.  
Common ecological metrics.