**­Fungal Pathogen Genomics 9 – 13 May 2023 course timetable**

**Tuesday 9th May**

| **Time (BST)** | **Content** | **Instructors/Speaker** |
| --- | --- | --- |
| 10:00 – 10:30 | Registration |  |
| 10:30 – 12:30 | **Welcome, and Instructor/Database introductions**  Wellcome Genome Science  Ensembl Fungi  SGD/CGD  MycoCosm/JGI  FungiDB | Martin Aslett  Aleena Mushtaq + Manuel Carbajo  Jodi Lew-Smith  Sara Calhoun  D Roos & E Basenko |
| 12:30 – | **1. Introduction to database queries**  FungiDB site search & advanced search strategies - p.6  SGD YeastMine - p.16  Ensembl Fungi – BioMart - p.24  Ensembl Fungi Molecular Interactions - p.35 | All instructors |
| 13:00 – 14:00 | Lunch |  |
| – 15:30 | Introduction to database queries, Cont/… | All instructors |
| 15:30 – | **2. Transcriptomics & Proteomics**  Ensembl Fungi Track Hubs – p. 46  SGD Expression tools - SPELL – p. 53  FungiDB Transcriptomic & Proteomic analysis– p. 57  Assessing (& editing) gene annotation (JBrowse/Apollo) – p.68 | All instructors  D Roos |
| 16:00 – 16:30 | Tea break |  |
| – 18:30 | Transcriptomics & Proteomics, cont | All instructors |
| 18:30 – 19:00 | **3. SNPs & Variants**  SGD Variant viewer – p. 76  FungiDB SNP analysis & CNVs – p. 80  Exploring variant in Ensembl Fungi – p. 98 | All instructors |
| 19:00– 20:00 | **Welcome reception & Dinner** |  |
| 20:00 – 21:00 | Participant presentations (2 min flash talks) | All instructors |

**Wednesday 10th May 2023**

| **Time (BST)** | **Content** | **Instructors/Speaker** |
| --- | --- | --- |
| – 09:00 | Breakfast |  |
| 09:00 – 10:30 | SNPs & Variants (Cont.) | All instructors |
| 10:30 – 11:00 | Tea break |  |
| 11:00 – 13:00 | **4. Comparative Genomics & Orthology and Evolutionary analysis & cross-species inference**  Ensembl Fungi – WGA – p. 111  MycoCosm CAZy enzymes– p. 118  MycoCosm Synteny– p. 127  Exploring protein domains and clusters across Ensembl & MycoCosm– p. 132  SGD predicting fungal biology– p. 141  Ensembl Fungi Evolutionary analysis (gene trees) – p. 149  FungiDB JBrowse synteny – p. 163  FungiDB &OrthoMCL: Orthology and Phyletic Patterns – p. 174 | 15 min intro: D Roos |
| 13:00 – 14:00 | Lunch |  |
| 14:00 – | Comparative Genomics & Orthology, Cont/… | All instructors |
| 16:00– 16:30 | Tea break |  |
| – 17:00 | Comparative Genomics & Orthology, Cont/… | All instructors |
| 17:00 – 19:00 | **5. NGS data analysis I**  (note: RNA-Seq and Variant calling sessions are run in parallel)  Background & Intro to VEuPathDB Galaxy  Deploying workflows using pre-loaded data  5a. RNA-Seq – p. 186  5b. SNP Calling– p. 200 | **Intro lecture** -Crouch  RNA-Seq  SNP calling  Galaxy platform &  user workspaces  5a: Crouch / Basenko  5b: Roos / Brown |
| 19:00– 20:00 | **Dinner** |  |
| 20:00 – 21:00 | **Research Seminar (Michael Bromley, MRC)** |  |

**Thursday 11th May 2023**

| **Time (BST)** | **Content** | **Instructors/Speaker** |
| --- | --- | --- |
| – 09:00 | Breakfast |  |
| 09:00 – | **6. Enrichment analysis**  SGD GO Slim mapper – p. 207  CGD GO Term finder – p. 210  FungiDB GO enrichment – p. 214 | 10 min intro: S Brown |
| 10:30 – 11:00 | Tea break |  |
| – 12:30 | Enrichment analysis, Cont/… | All instructors |
| 12:30 – | **7. NGS Data analysis II**  (note: RNA-Seq and Variant calling sessions are run in parallel)  7a. RNA-Seq – p. 224  7b. SNP Calling – p. 236 | Lecture: K. Crouch  7a. Crouch / Basenko  7b: Roos / Brown |
| 13:00 – 14:00 | Lunch |  |
| 14:00 – 15:00 | **Sanger Tour** | Nishadi De Silva |
| 15:00 – | **NGS Data analysis II**, Cont/… | All instructors  7a. Crouch / Basenko  7b: Roos / Brown |
| 16:00– 16:30 | Tea break |  |
| – 18:30 | **NGS Data analysis II**, Cont/…  (note: RNA-Seq and Variant calling sessions are run in parallel) | All instructors  7a. Crouch / Basenko  7b: Roos / Brown |
| 18:30 – 19:00 | **Introduction to group projects** | Nishadi De Silva |
| 19:00– 20:00 | **Dinner** |  |
| 20:00 – 21:00 | **Research Seminar (Ester Gaya, KEW)** |  |

**Friday 12th May 2023**

| **Time (BST)** | **Content** | **Instructors/Speaker** |
| --- | --- | --- |
| – 09:00 | Breakfast |  |
| 09:00 – | **8. Functional analysis: Pathways & metabolites**  MycoCosm KEGG Browser & Secondary metabolism clusters – p. 252  FungiDB pathways & metabolites – p. 263 | All instructors |
| 10:30 – 11:00 | Tea break |  |
| – 12:00 | Functional analysis: Pathways & metabolites, Cont/… | All instructors |
| 12:00 – | **Group Projects** | Nishadi De Silva & All instructors |
| 13:00 – 14:00 | Lunch |  |
| 14:00 – | Group Projects, Cont/… |  |
| 16:00– 16:30 | Tea break |  |
| – 19:00 | Group Projects, Cont/… | All instructors |
| 19:00– 20:00 | **Dinner** |  |

**Saturday 13th May 2023**

| **Time (BST)** | **Content** | **Instructors/Speaker** |
| --- | --- | --- |
| – 09:00 | Breakfast |  |
| 09:00 – | Group Projects, Cont/… | All instructors |
| 10:30 – 11:00 | Tea break |  |
| 11:00 – 13:00 | **Group Projects Presentations (12 min/team max)** | All instructors |
| 13:00 – 14:00 | Lunch & Departure |  |