Biological Sciences 101/Molecular and Cellular Biology 198, Section 2  
Genetics: From Mendel to Genomes  
Summer Abroad 2013  
Dr. Mark F. Sanders (mfsanders@ucdavis.edu)

by Mark F. Sanders and John L. Bowman (required)  

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<th>DATE</th>
<th>LECTURE TOPIC/ACTIVITIES</th>
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<td><strong>Week 1 – Gene Transmission and Gene Mapping</strong></td>
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| Sat 8/10 | Arrival and check at Hilton Hotel Vienna (Austria)  
6:00 pm on-site orientation | |
| Sun 8/11 | Travel to Brno, Czech Republic  
Check into Mendel University dormitory  
City tour in the afternoon  
Welcome dinner in the evening at The Wooden Rose | |
| M 8/12 | Transmission Genetics  
Lecture location is the Mendel Museum, Brno  
Activity: Hosted lunch followed by a tour of the museum, the monastery and the church (formerly St. Thomas church, now the Church of the Assumption of the Virgin Mary) | Ch 2: 25-57 |
| T 8/13 | Cell Division and Chromosome Heredity  
Activity: Seminar presentation by Dr. Roman Hobza, X Chromosome Evolution and genetics research in the Czech Republic | Ch 3: 63-99 |
| W 8/14 | Gene Interaction  
Activity: Tutoring session B1 | Ch 4: 105-137 |
| R 8/15 | Genetic Linkage and Mapping in Eukaryotes  
Activity: Tutoring session B2 | Ch 5: 143-178 |
| F 8/16 | All day trip to Olomouc and Hyncice, Czech Republic.  
Visit the Institute of Experimental Botany in Olomouc to hear from IEB Director, Dr. Jaroslav Dolezel, and IEB scientists. We’ll also visit Mendel’s birthplace in Hyncice. | |
| Sat 8/17 | Transit to the University of Cambridge  
Check into Clare College dormitory | |
Sun 8/18  
10:00 Tour of the University of Cambridge campus and the city of Cambridge (a walking tour, about 2 hours)  
2:00 On-site orientation

**Week 2 – The Central Dogma**

M 8/19  
Gene Transfer and Mapping in Bacteria  
Activity: Tutoring session C1  
Ch 6: 184-203

T 8/20  
Gene Transfer and Mapping in Bacteria  
Activity: Research presentation: Dr. Melina Schuh, Research Group Leader, MRC Laboratory of Molecular Biology, Cambridge  
Title: Actin + oocytes: Old love – New affair  
Read paper in advance of this talk  
Ch 6: 203-216

W 8/21  
DNA Structure and Replication  
Activity: Tutoring session C2  
Ch 7: 222-257

R 8/22  
Molecular Biology of Transcription and mRNA Processing  
Activity: Tutoring session C3  
Ch 8: 260-294

F 8/23  
Midterm Exam (Chapter 1-6)

Sat and Sun  
Self-guided activities for essay II and for journaling, including the Museum of Zoology (Darwin artifacts) and the Whipple Museum (scientific instrumentation) or travel for the weekend

**Week 3 – Genetic Change and Evolution**

M 8/26  
Molecular Biology of Translation  
Activity: Tutoring session C4  
Ch 9: 298-328

T 8/27  
Chromosome Structure  
Activity: Research presentation, Dr. Nick Robinson, Research Fellow, Department of Biochemistry, University of Cambridge  
Title: A Structural and Biochemical Analysis of the Archaeal DNA Double-strand Break Repair and End-resection Machinery.  
Research paper to read in advance of this talk  
Ch 11: 359-380

W 8/28  
Chromosome Structure and Mutation  
Activity: Research presentation – Dr. Paul Edwards,  
Ch 13: 422-453
Research Group Leader, Hutchison-MRC Research Center, Cambridge
Title: Chromosome Abnormalities and Cancer
Research paper to read in advance of this talk

R 8/29
The Integration of Genetic Approaches
Title: Understanding Sickle Cell Disease
Activity: Research presentation – Dr. Lori Passmore,
Research Group Leader, MRC Laboratory of Molecular Biology
Title: Managing and Processing Messenger RNA
Research paper to read in advance of this talk

F 8/30
Gene Mutation, DNA Repair, Chromosome and Homologous Recombination

Sat and Sun
Self-guided activities for essay II and for journaling, including the Museum of Zoology (Darwin artifacts) and the Whipple Museum (scientific instrumentation) or travel for the weekend

Week 4 – Gene Regulation and Genomics

M 9/2
Regulation of Gene Expression in Bacteria and Bacteriophage
Activity: Tutoring session C5

T 9/3
Regulation of Gene Expression in Eukaryotes
Activity: Research presentation – Dr. Nitzan Rosenfeld,
Research Group Leader, Hutchison-MRC Research Center, Cambridge
Title: Circulating Tumour DNA as a Noninvasive Diagnostic and Research Tool for Cancer.
Research paper to read in advance of this talk

W 9/4
Genomics and Recombinant DNA Applications
Activity: Tutoring session C6

R 9/5
Course wrap-up and Botanic Garden tour
Activity: Research Presentation – Dr. Siobhan Braybrook,
Career Development Fellow, the Sainsbury Laboratory, University of Cambridge
Title: Computational Biology in the Analysis of Plant Growth and Development

F 9/6
Final Exam
Activity: Farewell Dinner in the Great Hall

Sat 9/7
Essay 2 due
Sun 9/8  Departure Day