

## Daily Schedule (two times per week):

	Mon-Tue	Wed-Thu	Fri
9.00-11.00	Lecture		Class biology UvA, room F1.24C (Sept 9) or F3.21 (Sept 16-30) Nikhef building, Science Park 105
11.00-12.00	Project	Class mathematics (theory plus exercises)	
	– lunch –		
13.00-14.00	Project		
14.00-16.00	Class Programming		

## Lectures 9.00-11.00:

Week	Day	Room	Topic, contents	Lecturer
1	Mon 5/9	M6.39	General: Modeling, optimality Evolution: mutations, selection, sex orthologs	JH
	Tue 6/9	M1.43	Genomics (Genes, genomics data, codons, translation/ transcription, microarray & proteomics data, splicing, PSI-blast)	JH
2	Mon 12/9	M6.39	Genomics (Sequence alignment / Bioinformatics for Systems Biology, Smith/Waterman (DP), sequence DBs)	JH
	Tue 13/9	F6.37	Ontologies & GO	AG
3	Mon 19/9	M6.39	Protein Bioinformatics: aa's, ss, folds, domains, disorder, TM, PDB	SA
	Tue 20/9	F6.37	Protein Bioinformatics: protein interactions & thermodynamics	AF
4	Mon 26/9	M6.39	Petri-net models	AF
	Tue 27/9	S6.07	Repeat detection and/or Domain prediction	JH
5	Mon 3/10	M6.39	< breathing space >	
	Tue 4/10	F6.37	Secondary Structure prediction (including Machine Learning)	AF
6	Mon 10/10	M6.39	Next Gen Sequencing	SA
6-7			– project work –	
8		P1.28/ P1.36/ P1.52	Oral and/or written exams	JH/ AF/ SA
	Fri 28/10	Plantagemiddellaan 45:	presentations + questions	all

### Acronym Lecturer

JH Jaap Heringa  
AF Anton Feenstra  
SA Sanne Abeln  
AG Andrew Gibson

### Acronym Lecturer

NB Nicola Bonzanni  
PB Punto Bawono  
ME Mohamed El-Kebir

## Project: 11.00-12.00 & 13.00-14.00

Week	Day	Room	Topic, contents	Lecturer
1	Mon 5/9	P3.37	Practical stuff (login etc.) and intro to Linux	AF
	Tue 6/9	P3.37	Intro to Project	AF
2	Tue 13/9	P3.37	Find Protein(s)	PB
	Mon 12/9	P3.37	Find Pfam family for your protein(s)	PB
3	Mon 19/9	P3.37	Find GO terms for your protein(s)	PB
	Tue 20/9	P3.37	Find matching sequences (Blast) plus GO & Pfam entries	PB
4	Mon 26/9	P3.37	Find SCOP families	PB
	Tue 27/9	P3.37	Scoring & Benchmarking	PB
5	Mon 3/10	P3.37	PSI-blast	PB/SA
	Tue 4/10	P3.37	<breathing space>	
6-7		P3.37	Project work: <ul style="list-style-type: none"><li>- building on scripts &amp; results from practicals</li><li>- report, presentation</li></ul>	

## Classes: 14.00-16.00

week 1: short questionnaire/test to identify entry level in Biology, Programming and Mathematics

weeks 1-6: twice weekly sessions

*Programming (Mondays and Tuesdays, room P3.37):*

- Python
- leading up to the scripting work for the practicals

Week	Day	Room	Topic, contents	Lecturer
1	Mon 5/9	P3.37	Questionnaire & Sorting & Practical Issues Class 1: Linux intro (afternoon)	AF/SA
	Tue 6/9	P3.37	Class 2: python shell: print, operator, types, if exercise: 'calculation' script	AF/SA
2	Mon 12/9	P3.37	Class 3: for/while, arrays exercise: sum i over n; n!	ME
	Tue 13/9	P3.37	Class 4: Functions, scope, namespace, import (libraries) exercise: guessing game; n! with recursion (bonus)	ME
3	Mon 19/9	P3.37	continue exercise: guessing game	ME/AF
	Tue 20/9	P3.37	Class 5: file I/O, dictionaries, string manipulation (e.g., split) exercise: codon table & translation	AF
4	Mon 26/9	P3.37	continue exercise: codon table & translation	AF
	Tue 27/9	P3.37	continue exercise: codon table & translation	AF
5	Mon 3/10	P3.37	Class 6: Regular expressions exercise: GO parsing	NB ME

	Tue 4/10	P3.37	continue exercise: GO parsing	ME
6	Mon 10/10	P3.37	continue exercise: GO parsing	ME
	Tue 11/10	P3.37	Class 7: Multi-dimensional arrays (lists, dictionaries), urls exercise: Score alignment, given pairwise alignment and BLOSUM62 matrix	AF
7	Mon 17/10	P3.37	continue exercise: Score alignment	AF
	Tue 18/10	P3.37	Class 8: Advanced issues: classes, documentation continue exercise: Score alignment	SA AF

*Mathematics (Wednesdays and Thursdays):*

- Mathematica?
- analytical functions
- differential equations
- linear algebra

*Biology (Fridays, at UvA):*

- metabolism
- signalling
- genomes and gene regulation
- cell biology