COURSE OUTLINE: BIOLOGY 200/Section 921 (SUMMER 2006)

INSTRUCTOR: Dr. Santokh Singh, Department of Botany
Room 2528, Bio Science Bldg., Second Floor
Telephone: 604-822-3330, E-mail: santokh@interchange.ubc.ca
OFFICE HOURS: during lecture breaks or by appointment

TUTORIAL COORDINATOR: Jamie Pighin, E-mail: jpighin@mail.botany.ubc.ca

TEACHING ASSISTANTS: Apurva Bhargava, E-mail: apurv@interchange.ubc.ca
Jacqueline Monaghan, E-mail: monagh9@interchange.ubc.ca

PRE-REQUISITE COURSES: All of BIOL 112 and one of CHEM 123 or CHEM 113; or all of SCIE 1, or all of BIOL 121 and co-requisite of all of CHEM 203

TEXTBOOK: **Essential Cell Biology**
Eds. B. Alberts *et al.* Garland Publishing, 2nd Edition, 2004.

COURSE CONTENT: **Nine Units:** (1) Introduction of Cell Structure & Function; (2) Informational Macromolecules; (3) Interphase nucleus; (4) Biological Information Flow (Transcription & Translation); (5) Structure & Function of Membranes; (6) Mitochondria & Chloroplasts; (7) Endomembranes; (8) Cytoskeleton; (9) Cell Cycle

TEACHING: Lectures; power point slides; textbook; tutorials

Course website URL: http://www.botany.ubc.ca/biol200/

COURSE EVALUATION:

Tutorials	25%
Mid-term examination	25%
Final Examination	50%

EXAMINATION DATES:

June 29 (1 -1:50 PM): **Midterm Examination** (in class)
July 7 (1 - 3:30 PM): **Final Examination** (in class)

Policies:

- A student must pass the lecture component to pass the course. The maximum grade obtainable by students failing the lecture portion of the course is 45%
- An individual student's marks for each of the three components, tutorial grade, midterm exam and final exam will be counted (**No grades will be dropped**)
- Both midterm and final exams may contain short answer, multiple choice/fill-in the blanks/definitions, experimental, and essay questions
- Final exam will be **cumulative**: All lecture and tutorial material may be covered
- If you miss the final exam you must contact the office of the Dean of Science as soon as possible

Biology 200 (Summer 2006): Lecture and Tutorial Schedule

Date	Unit	Lecture Topics, Exams, Readings*	Tutorial
M June 19	**Unit 1: Introduction**	**Lecture 1:** Course outline; Cell organization; Microscopy; Macromolecules; Nucleic acids	
T June 20	**Unit 2: Informational Macromolecules**	**Lecture 2:** Nucleic Acids (continues); Amino acids and protein structure	
W June 21	**Unit 3: Interphase Nucleus**	**Lecture 3:** DNA+proteins make chromatin; Nuclear structure and nuclear/cytoplasmic transport	Tutorial 1 – UNIT1
Th June 22	**Unit 4: Biological Information Flow**	**Lecture 4:** Transcription of DNA to RNA; RNA transcript processing.	Tutorial 2 – UNIT2
F June 23		**Lecture 5**: RNA transcript processing (continues); Genetic code, translation	Tutorial 3 – UNIT3
M June 26	**Unit 5: Membranes**	**Lecture 6**: lipid bilayers, fluidity, asymmetry; Membrane proteins, plasma membrane.	
T June 27		**Lecture 7:** Active transport osmotic homeostasis; membrane potential.	Tutorial 4 – UNIT4
W June 28	**Unit 6: Mitochondria and chloroplasts**	**Lecture 8:** Endosymbiotic organelles; mitochondria; Chloroplasts: structure and introduction to photosynthesis.	Tutorial 5 – UNIT5
Th June 29	**Midterm Exam [50 min in class] + Unit 7: Endomembranes**	**MIDTERM EXAM** [1 - 1:50 PM] (Covers units 1 – 5 and lectures 1 – 7). **Lecture 9:** Protein targeting and signal sequences; ER structure and vesicle traffic; Glycosylation, Golgi structure.	
F June 30		**Lecture 10:** Secretion, exocytosis; Endocytosis, lysosomes.	Tutorial 6 – UNIT6
M July 3	**No class**	**CANADA DAY - Holiday**	
T July 4	**Unit 8: Cytoskeleton**	**Lecture 11:** Cytoskeleton and intermediate filaments; Microtubules; actin microfilaments.	Tutorial 7 – UNIT7 **Report Due**
W July 5	**Unit 9: Cell cycle**	**Lecture 12:** Checkpoint control of cell cycle; Cyclins and CDKs; Selected topics (Mitosis, DNA Replication).	Tutorial 8 – UNIT8
Th July 6	**Course Review**	**REVIEW SESSION (in class)**	Tutorial 9 – UNIT9
F July 7	**Final Exam [2.5 hours in class]**	**FINAL EXAM** [1 – 3:30 PM]	

*Detailed textbook chapter readings and other assigned readings will be provided with the lecture outline for each lecture