

Columbia College

Biology Skills for Health Care Professionals 2 (BIO102)

Lecture 1

Course Outline

Semester Dates: October 12, 2015 – November 14, 2015

Please note that when a holiday falls during the week, your class will be rescheduled for the Friday of that week. Students are required to make arrangements to be present at the rescheduled class.

Facilitator: Tanvir Burni

Email: tanvirburni@yahoo.com

Class Time: 5:30 pm to 9:30 pm (Tue./Thur.

Room: 4-159

Credit: Non-Credit Course

Prerequisite: Biology 101

Note: It is the student's responsibility to be familiar with the information contained in the Course Outline and to clarify any areas of concern with the facilitator.

Course Description:

The Pre-Health Care Professional student will focus on the basic Biology skills required by persons employed in a variety of Health Care contexts. These skills include a study of human systems such as the nervous system, the senses, the endocrine and reproductive systems, the basis of heredity, genetics and population changes. Additional topics may be covered on an as needed basis.
(5 weeks, 40 hrs.)

Learning Outcomes:

As a result of active participation in these sessions, a student can expect to:

- Describe the general functions of the nervous system.
- Identify the parts and functioning of the senses; ear, eye and nose.
- Describe the endocrine glands and the functions of their hormones.
- Describe the male and female reproductive system – anatomy and functioning.
- Understand the field of genetics as the study of the inheritance of particular characteristics that are passed on through the family generations.
- Understand that all organisms require DNA in each cell to encode the instructions necessary to live and produce.
- Understand the genetic basis for population change.
- Understand how to measure and account for changes in populations.

Course Format:

This course uses a variety of teaching/learning methods including discussion, personal reflection, experiential exercises, student presentations, role-plays, group activities and especially case studies. Our faculty aims to create a learning environment where the learner is actively engaged in inquiry, critical thinking and problem solving. The classroom provides you with a place where you can learn with and from others in a cooperative and collaborative manner.

You are expected to take a very active part in class discussions and take responsibility for your own learning. Be a positive and co-operative team member. Columbia College uses a facilitation model of instruction where the facilitator's role is to facilitate your learning. The expectation is that you will come to class prepared with pre-class homework completed. Your facilitator will engage you in activities that are based on your completed homework and readings. Your enthusiastic and positive approach in the classroom will create an atmosphere that will help every student develop the knowledge, skills and attitudes that are needed for success.

How you conduct yourself in our classes will, to a large extent, mirror your conduct in society and your future work site. For example, if you have a tendency to ask questions, challenge the ideas of others in a respectful manner, draw out the best from your colleagues, and encourage both group development and task accomplishment in this class, it is likely you will do the same at work. A high level of student involvement and developing professionalism is expected in the classroom as you work towards your goal.

Required Textbooks and Equipment:

Ritter, B., Burley, K. & Frazer, D. (2007). *Nelson Biology 20 – 30*: Nelson Education.

Recommended Readings and Resources:

Students may access these sources from the College and from home.

ProQuest Nursing and Allied Health, Canadian Business and Current Affairs, and Canadian Newsstand

- <http://proquest.umi.com/login>
Username: cc-library
Password: welcome

GALE InfoTrac Custom Journals

- <http://infotrac.galegroup.com/itweb/calg145?db=SP00>
Password: cclibrary09

Further Recommended Readings and Resources:

Nelson Biology Resources Online

<http://hed.nelson.com/nelsonhed/contactus/unauth.do>

Username: nelsonbio_student

Password: nelsonbio_onlinelearning

Homework Assignment Due for the First Class:

- Read Chapter 13.
- Create 3 questions based on the reading. Bring these to class and hand in to the facilitator. This is a facilitation model; therefore, you will need to participate in the class. You will not be reading the text in class. You will have a quiz on your reading

Evaluation - Assessment of Student Performance:

The final grade in the course will be based on the following elements. Wherever possible facilitators will use rubrics to assess your performance and offer feedback.

| Title of Assignment/Examination | Due Date | Weight |
|---------------------------------|----------|--------|
| Daily Quizzes | Daily | 30% |
| In-class Learning Activities | Daily | 10% |
| Review Assignment | Day 9 | 10% |
| Final Exam | Day 10 | 50% |

Please note that all homework and assignments are due at the beginning of each class.

Grading:

Grades for each component will be added together at the end of the semester. The final total will be translated to the Columbia College's 4.0 grading scale as follows:

Marking and Grading Conversion:

| Description | Letter Grade | Grade Points | Percentage Scale | |
|--------------|--------------|--------------|------------------|----|
| Excellent | A+ | 4.0 | 100 | 95 |
| | A | 4.0 | 94 | 90 |
| | A- | 3.7 | 89 | 85 |
| Good | B+ | 3.3 | 84 | 80 |
| | B | 3.0 | 79 | 75 |
| | B- | 2.7 | 74 | 70 |
| Satisfactory | C+ | 2.3 | 69 | 65 |
| | C | 2.0 | 64 | 60 |
| | C- | 1.7 | 59 | 55 |
| Poor | D | 1.0 | 54 | 50 |
| Failure | F | 0.0 | 49 | 0 |

For Practical Nurse and Dental Assistant students who are provisionally accepted into their respective programs at Columbia College, the passing grade for this course is a B. Please note that these students must also score a B on the final exam.

Submission and Completion of Assignments:

You are expected to submit assignments by the due date. Any late assignments may be assessed a marking penalty of 5%. If you are unable to submit an assignment on the due date, you must request an extension **before** the due date by filling out an *Application for Assignment Extension form (SSPP-F012)* that is to be submitted to the Department Chair for approval. This form is available on Columbia's website, Bldg. 802 – Main Office and from Department Chairs.

Requesting an Examination Deferral:

If you are requesting an exam to be deferred, you must submit an Application for *Deferred Examinations form (SSPP-F012)* to the Department Chair **within 48 hours of the missed examination date and time**. Applications for deferred examinations will only be considered due to medical or personal emergency. A medical certificate or other appropriate documentation may be required. This form is available on Columbia's website, Bldg. 802-Main Office and from Department Chairs.

Attendance Requirements:

Columbia College believes that students are committed to their program and learning experiences. However, it is understood that there are times when students may be absent. Any absences can be viewed as a potentially serious disruption of the learning process and necessary achievement of the learning objectives. Being late is also considered unacceptable as it interferes with the learning opportunities of others. Unavoidable absences or lateness must be reported to the course facilitator in advance. Please refer to Columbia College's *Attendance Policy and Regulations (ADM-P151)* for detailed information on Attendance Requirements.

Academic Integrity:

Academic dishonesty is a serious offence and can result in suspension or expulsion from Columbia College.

There is no tolerance for academic dishonesty and any student caught plagiarizing is subject to serious sanctions as outlined in the *Student Code of Conduct Policy (ADM-P229)*. Students are encouraged to familiarize themselves with this policy and avoid any behavior that could possibly be seen as cheating, plagiarizing, misrepresenting, or putting into question the integrity of one's academic work.

Student Conduct:

It is the responsibility of each student to uphold the expectations and responsibilities outlined in the *Student Code of Conduct Policy (ADM-P229)* and any additional requirements established by your program.

Generally, each student will:

- be respectful and courteous toward others;
- demonstrate appropriate and supportive communication skills, and coach, assist, advise and otherwise support other students in their studies;
- manage any personal stress and conflict in a positive and resourceful manner, and assist others to do the same;
- be dressed in a manner appropriate for their workplace or learning environment, as established by the program;
- conduct themselves in a professional manner with regard to their communication with others and their behavior in class;
- conduct themselves with academic integrity in all of their learning activities, tests, exams, and assignments
- keep up with day-to-day classroom and course expectations.

Important Dates:

| Description | Date |
|---|--|
| Last to add/drop courses | 5 school operating days from the start of the semester OR before the third scheduled class, whichever is greater |
| Last day to withdraw without academic penalty | 50% or less of the semester has been completed |
| Final Examination | A final exam may take many formats. If a final exam is scheduled, it will be taken in an assigned room under the supervision of a Test Proctor. <u>Students must be on time as they will not be permitted to enter once the exam has started.</u> Exam dates, times, and location are posted by the main office Bldg. 802 and by the library in Bldg. 4. <u>It is the student's responsibility to check this exam posting.</u> |

Appeals:

Please refer to the *Student Appeal Policy (ADM-P177)*.

Students with Temporary or Permanent Disabilities:

Students with temporary or permanent disabilities may apply for accommodations. To be considered for an accommodation, a student must register with Columbia College's Disability Services by making an appointment with a Disability Services Advisor – Main Office – Bldg. 802 or emailing disabilityservices@columbia.ab.ca. The Department Chair or facilitator is not able to provide you with any accommodations without you taking this step. Please refer to Columbia College's website to review *the Accommodation Policy and Handbook (ADM-P188)*.

Student Support:

Students should be aware that Life Coaching, Career and Disability Services, and Student Support Services (i.e. tutoring, academic strategists, etc.) are provided by Columbia College. Inquire how to request these services at the Main Office in building 802. It is the student's responsibility to discuss their specific learning needs with the appropriate service provider.

Class Schedule/Overview:

Please note that this schedule is subject to change. Any changes or cancellations will be emailed to you. It is your responsibility to check the email address you have given to the school on a daily basis for any messages from the Department Chair/designate, facilitator or College Administration. It is the student's responsibility to be familiar with the information contained in the Course Outline and to clarify any areas of concern with the facilitator.

| Class Session | Topics | Pre-Class Readings |
|---------------|---|--|
| 1 | The Nervous System 13.1 The Importance of the Nervous System 13.2 Electrochemical Impulse 13.2 Central Nervous System 13.4 Peripheral Nervous system | Read Chapter 13. Create 3 questions based on the reading. Bring these to class and hand in to the facilitator. This is a facilitation model; therefore, you will need to participate in the class. You will not be reading the text in class. You will have a quiz on your reading. |
| 2 | The Senses 14.1 Sensory Information 14.2 Structure of the Eye 14.3 Hearing and Equilibrium | Read Chapter 14 Create 3 questions based on your reading to hand in to the facilitator. |
| 3 | Endocrine System 15.1 Homeostasis, Hormones, and the Endocrine System 15.2 Hormones that Affect Blood Sugar 15.3 Hormones that Affect Metabolism 15.4 Hormones Affecting Water and Ion Balance 15.5 Adjustments to Stress | Read Chapter 15 Create 3 questions based on your reading to hand in to the facilitator. |
| 4 | Reproduction and Development 16.1 The Male Reproductive System 16.2 The Female Reproductive System 16.3 Fertilization, Pregnancy, and Birth | Read Chapter 16 Create 3 questions based on your reading to hand in to the facilitator |
| 5 | Cell Division 17.1 The Cell Cycle 17.2 Applications of the Cell Cycle 17.3 Meiosis 17.4 Abnormal Meiosis | Read Chapter 17 Create 3 questions based on your reading to hand in to the facilitator. |
| 6 | The Basis of Heredity 18.1 Gregor Mendel – Pioneer of Genetics 18.2 Probability and Inheritance of Single Traits 18.3 Pedigree Charts 18.4 Other Patterns of Inheritance 18.5 Dihybrid Crosses and Polygenic Traits | Read Chapter 18 Create 3 questions based on your reading to hand in to your facilitator. |
| 7 | Beyond Mendel 19.1 Chromosomes and Genetics 19.2 Gene Linkage and Crossover 19.3 DNA is the Hereditary Material | Read Chapter 19 Create 3 questions based on your reading to hand in to your facilitator. |
| 8 | The Genetic Basis for Population Change 21.1 Characteristics of Populations 21.2 Genetic Drift including Case Study Antibiotic Resistant Bacteria 21.3 Factors Affecting Population Change | Read Chapter 21. Create 3 questions based on your reading to hand in to your facilitator. |
| 9 | Review | All chapters |
| 10 | Final Exam – Location to be announced 2 hr. | |

Appendix 1 Assignment Outlines

Student Preparation and Engagement – Value 5%

An important component of success in a post-secondary environment and in the work world is the ability to demonstrate active participation or engagement in what one is doing. You will be evaluated on how well you participate and are engaged, whether you come to class on time and remain in class for the entire time, have done your reading and homework as assigned etc. Please review the rubric that is attached to this syllabus.

In class Activities – Value 10%

Your facilitator will ask you to take part in a variety of specific learning activities. You will be evaluated on how well you do these activities. Please review the rubric that is attached to this syllabus to learn about this area of evaluation.

BIO 101 STUDENT GROUP ASSIGNMENT: STUDY PACKAGE AND PRESENTATION

Study Review Package – 10%

Presentation – 5%

Please see rubrics appended.

Due: Class 9

Topics to be declared – Class 2

- The goal of this assignment is for students to learn how to work together and to learn how to prepare study guides from assigned text chapters.
 - In the nursing program, group work will be an essential component.
 - You must have the skills to work well in a group setting.
 - In study cohorts, students rely on one another in order to make studying for exams easier.
 - In order to have successful study cohorts, students must learn to trust one another's work.
- In groups of 2, students will prepare a study review package from one of the topics covered in class
 - Must include a handout for each member of the class and for the instructor
 - This study package must contain **ALL** relevant material that your peers will need to study for the final exam
- Groups will also present a 10 minute oral presentation to the class, **summarizing one or two key points** from their review package
 - Must include a visual component (i.e. Powerpoint, overheads, use of board, poster, etc.)

**Appendix 2
Rubrics**

**Columbia College
Student Presentation and Study Guide Assignment
Last Revised: April 2014**

| Student's Name | | Course Code | Date | Facilitator/Evaluator's Name | |
|---------------------------|---|--|---|------------------------------|--|
| CRITERIA | SUPERIOR (10.0) | ADEQUATE (7.5) | MINIMAL (5.0) | SCORE | |
| CONTENT (50%) | <ul style="list-style-type: none"> Begins with a clear and concise overview of the topic and ends with a clear and concise summary of key points. Significantly increases audience understanding and knowledge of topic. All key points from the chapter are included. | <ul style="list-style-type: none"> Begins with an overview of the topic and ends with a summary of key points. Raises audience understanding and awareness of most key points. Most of the key points from the chapter are included. | <ul style="list-style-type: none"> The overview and/or summary of key points is missing or incomplete. Raises audience awareness and understanding of some key points. Many key points from the chapter are missing. | | |
| ORGANIZATION (20%) | <ul style="list-style-type: none"> The information is presented in a logical, interesting sequence which the audience can follow. Visual aids enhance understanding and capture the audience's attention. Font sizes, spacing and headings are used effectively. | <ul style="list-style-type: none"> The information is presented in a logical sequence which the audience can follow. Visual aids are used, but the structure is somewhat distracting. Font sizes may be too small, spacing may be cluttered or headings are unclear. | <ul style="list-style-type: none"> Audience has difficulty understanding the information because there is no clear or logical sequence of material. Visual aids are not used or they detract from audience understanding. Poor use of spacing, font sizes and headings. | | |
| MECHANICS (5%) | <ul style="list-style-type: none"> There are no misspellings or grammatical errors. | <ul style="list-style-type: none"> There are no more than three misspellings and/or grammatical errors. | <ul style="list-style-type: none"> There are four or more misspellings and/or grammatical errors. | | |

| CRITERIA | SUPERIOR (10.0) | ADEQUATE (7.5) | MINIMAL (5.0) | SCORE |
|--|--|---|--|-------|
| DELIVERY (25%) PRESENTATION | <ul style="list-style-type: none"> The speaker delivers the message in a confident, poised, enthusiastic manner. The volume and rate varies to add emphasis and interest. Pronunciation and enunciation are very clear. The speaker exhibits very few disfluencies, such as “ahs”, “uhms”, or “you knows”. The speaker holds the attention of the entire audience with the use of direct eye contact, seldom looking at notes. Visual aids enhance understanding and capture the audience’s attention. Font sizes, spacing and headings are used effectively. Presentation length is within 2 minutes of allotted time. | <ul style="list-style-type: none"> The volume is not too low or too loud and the rate is not too fast or too slow. The pronunciation and enunciation are clear. The speaker exhibits few disfluencies, such as “ahs”, “uhms”, or “you knows”. Consistent use of direct eye contact with audience, but still returns to notes. Visual aids are used, but the structure is somewhat distracting. Font sizes may be too small, spacing may be cluttered or headings are unclear. Presentation length is within 4 minutes of allotted time. | <ul style="list-style-type: none"> The volume is too low or too loud and the rate is too slow or too fast. The pronunciation and enunciation are unclear. The speaker exhibits many disfluencies, such as “ahs”, “uhms”, or “you knows”. The listener is distracted by problems in the delivery of the message and has difficulty understanding the words in the message. Displays minimal eye contact with audience, while reading mostly from notes. Visual aids are not used or they detract from audience understanding. Poor use of spacing, font sizes and headings. Presentation is at least 5 minutes above or below allotted time. | |

Total Score out of 40:

Facilitator/Evaluator’s Comments:

Columbia College
Student Engagement Rubric
 Last Revised: December 2011

Student's Name _____ **Course Code** _____ **Date** _____ **Facilitator/Evaluator's Name** _____

| Pts | Preparation for Class | Quality of Participation | Involvement in Process | Frequency of Participation |
|-----|---|---|---|---|
| 5 | <ul style="list-style-type: none"> Demonstrates completion of readings or assignment and awareness of all key concepts contained in readings or assignment on a daily basis. | <ul style="list-style-type: none"> Comments significantly add to the learning process; consistently demonstrates high order thinking, analysis, synthesis, and evaluation; demonstrates ability to appropriately apply concepts to real-life situations; always participates constructively in discussion on a daily basis | <ul style="list-style-type: none"> Comments build on contribution of others, enabling group to integrate experiences and insights (linking theory and real-life experiences); supportive and encouraging to other class members; comments are focused and concise. | <ul style="list-style-type: none"> Contributes actively and consistently to group process on a daily basis. |
| 4 | <ul style="list-style-type: none"> Demonstrates completion of readings or assignment and awareness of most of the key concepts on a daily basis. | <ul style="list-style-type: none"> Comments contribute to learning process; shows evidence of ability to apply concepts to real-life situations; mostly demonstrates higher order thinking skills; generally participates constructively in discussion on a daily basis. | <ul style="list-style-type: none"> Comments do not always build on the contribution of others; most times shows support of other classmates. | <ul style="list-style-type: none"> Contributes actively and somewhat inconsistently to group process on a daily basis. |
| 3 | <ul style="list-style-type: none"> Demonstrates awareness of some key concepts or ideas contained in readings or assignment on a daily basis. | <ul style="list-style-type: none"> Comments show evidence of awareness and understanding of concepts covered in the reading or assignment; inconsistently demonstrates high-order thinking; inconsistently participates in a constructive manner. | <ul style="list-style-type: none"> Speaks up when asked with comments that add to understanding; inconsistently shows support of other classmates; comments tend to be at times off focus. | <ul style="list-style-type: none"> Contributes inconsistently to group process. |
| 2 | <ul style="list-style-type: none"> Inconsistently demonstrates awareness of concepts or ideas contained in readings or assignment; inconsistent daily preparation. | <ul style="list-style-type: none"> Comments show background knowledge of basic concepts covered in the readings or assignment; little demonstration of higher-order thinking; generally, participation is not constructive | <ul style="list-style-type: none"> Contributes little to group understanding; little evidence of being encouraging to others. | <ul style="list-style-type: none"> Does not contribute to group except when asked. |
| 1 | <ul style="list-style-type: none"> Demonstrates little or no awareness of key concepts or ideas contained in readings or assignment; little to no daily preparation. | <ul style="list-style-type: none"> Comments show no evidence of awareness of concepts covered in the readings or assignment; shows no evidence of higher-order thinking; shows general lack of interest. | <ul style="list-style-type: none"> Does not contribute to the group process. | <ul style="list-style-type: none"> Does not contribute. |

Total Score out of 20:

Facilitator/Evaluator's Comments:

Columbia College
In-Class Learning Activity Rubric
 Last Revised: May 7, 2014

| Student's Name | | Course Code | Date | Facilitator/Evaluator's Name | |
|--|---|---|---|--|-------|
| Area | A 10-9 | B 8-7 | C-D 6-5 | F 4-0 | Score |
| Contribution to Group Goals and Tasks | <ul style="list-style-type: none"> Regularly provides useful ideas to group. Contributes consistently and actively to group tasks and makes a strong effort to achieve goals. Fully accepts and fulfills individual role within group. | <ul style="list-style-type: none"> Often provides useful ideas to group. Contributes actively to group tasks with occasional prompting. Usually accepts and fulfills individual role within group. | <ul style="list-style-type: none"> Sometimes provides useful ideas to group. Does what is required with occasional prompting. | <ul style="list-style-type: none"> Rarely provides useful ideas to group. Works toward goals only when prompted. | |
| Quality of Work Output | <ul style="list-style-type: none"> Demonstrates superior quality work. Does not need to be prompted to get work done on time. | <ul style="list-style-type: none"> Demonstrates good quality work. May need occasional prompting to get the work done on time, but does not hold up group's progress. | <ul style="list-style-type: none"> Work sometimes needs monitoring or re-doing. Usually needs prompting to get work done on time and tends to hold up group progress. | <ul style="list-style-type: none"> Work usually needs monitoring or re-doing. Group's progress is held up by poor personal management. Always needs prompting to get the work done. | |
| Working with Group Members | <ul style="list-style-type: none"> Listens to others and speaks a significant amount as appropriate. Never argues with group members. Always helps all group members to arrive at a fair and logical decision. | <ul style="list-style-type: none"> Listens but sometimes talks too much or dominates the discussion. Rarely argues with group members. Usually considers the views of all group members. | <ul style="list-style-type: none"> Usually dominating the discussion, rarely allows others to speak. Sometimes argues with group members. Often sides with specific individuals instead of considering views of all group members. | <ul style="list-style-type: none"> Is always talking, never allows anyone else to speak. Usually argues with group members. Usually wants to have things his/her own way. | |

| Area | 5 | 4 | 3 | 2-0 | Score |
|--|---|--|---|---|-------|
| Overall Attitude / Disposition | <ul style="list-style-type: none"> Never openly critical of learning activity, group tasks, or group members. Always demonstrates positive attitude towards group goals and tasks. | <ul style="list-style-type: none"> Rarely openly critical of learning activity, group tasks or group members; Generally demonstrates positive attitude towards group goals and tasks. | <ul style="list-style-type: none"> Sometimes openly critical of learning activity, group tasks or group members. Demonstrates occasional negative attitude towards group goals and tasks. | <ul style="list-style-type: none"> Often openly critical of learning activity, group tasks or group members. Usually demonstrates negative attitude towards group goals and tasks. | |
| Readiness to Engage in Group Activity | <ul style="list-style-type: none"> Always ready to begin tasks without the need for prompting. Always comes prepared with ideas and materials needed to get the work started on time. | <ul style="list-style-type: none"> Almost always ready to begin tasks and rarely needs prompting. Almost always comes prepared with ideas and materials to get the work started on time. | <ul style="list-style-type: none"> Often needs prompting to begin tasks and do the required work. Usually comes prepared with ideas and materials to get the work started on time. | <ul style="list-style-type: none"> Always needs prompting to begin tasks and do the required work. Always or often relies on others to do the work. Does not usually come prepared with ideas and materials to get the work started on time. | |

Plagiarism: A “0” grade will be given to a paper where significant sections of the paper were copied from other, unattributed sources.

Total Score out of 40:

Facilitator/Evaluator’s Comments: