## Schedule

**GC1135: Course Schedule: May Session 2003**

<table>
<thead>
<tr>
<th>DATE</th>
<th>LECTURE TOPICS</th>
<th>LECTURE: QUIZ ACTIVITIES</th>
<th>LAB TOPICS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Week One:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tue, May 27th</td>
<td>Introductory Material: Chapters 1-4</td>
<td>Computer Lab</td>
<td>Introduction to Lab; Begin Skeleton</td>
</tr>
<tr>
<td>Wed, May 28th</td>
<td>Introductory Material: Chapters 1-4</td>
<td>Computer Lab</td>
<td>Finish Skeleton</td>
</tr>
<tr>
<td>Thu, May 29th</td>
<td>Skeletal System</td>
<td>Cooperative Quiz: Topic TBA</td>
<td>Open Lab: Movies and Catch-Up</td>
</tr>
<tr>
<td>Fri, May 30th</td>
<td>Muscular System</td>
<td>Cooperative Quiz: Topic TBA</td>
<td>Test #1</td>
</tr>
<tr>
<td><strong>Week Two:</strong></td>
<td></td>
<td></td>
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<tr>
<td>Mon, Jun 2nd</td>
<td>Begin Nervous System (Carl)</td>
<td>Cooperative Quiz: Nervous System</td>
<td>Skeletal Muscles</td>
</tr>
<tr>
<td>Tue, Jun 3rd</td>
<td>Finish Nervous System (Carl)</td>
<td>Cooperative Quiz: Nervous System</td>
<td>Brain and Eye Anatomy</td>
</tr>
<tr>
<td>Wed, Jun 4th</td>
<td>Test #1 (Individual)</td>
<td>Test #1 (Group)</td>
<td>Vision and Reflexes</td>
</tr>
<tr>
<td>Thu, Jun 5th</td>
<td>Begin Cardiovascular System</td>
<td>TBA</td>
<td>Open Lab: Movies and Catch-Up</td>
</tr>
<tr>
<td>Fri, Jun 6th</td>
<td>Finish Cardiovascular System</td>
<td>TBA</td>
<td>Test #2</td>
</tr>
<tr>
<td><strong>Week Three:</strong></td>
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<td></td>
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<tr>
<td>Mon, Jun 9th</td>
<td>Endocrine System</td>
<td>Cooperative Quiz: Topic TBA</td>
<td>Heart Anatomy</td>
</tr>
<tr>
<td>Tue, Jun 10th</td>
<td>Begin Reproductive System</td>
<td>Cooperative Quiz: Topic TBA</td>
<td>Pulse and Blood Pressure</td>
</tr>
<tr>
<td>Wed, Jun 11th</td>
<td>Finish Reproductive System</td>
<td>Cooperative Quiz: Topic TBA</td>
<td>ECG and Pulse Simulations</td>
</tr>
<tr>
<td>Thu, Jun 12th</td>
<td>Test #2 (Individual)</td>
<td>Test #2 (Group)</td>
<td>Open Lab: Movies and Catch-Up</td>
</tr>
<tr>
<td>Fri, Jun 13th</td>
<td>Begin Lymphatic System</td>
<td>TBA</td>
<td>Test #3</td>
</tr>
<tr>
<td><strong>Week Four:</strong></td>
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<tr>
<td>Mon, Jun 16th</td>
<td>Finish Lymphatic System</td>
<td>Cooperative Quiz: Topic TBA</td>
<td>Anatomy of the Digestive and Respiratory Systems</td>
</tr>
<tr>
<td>Tue, Jun 17th</td>
<td>Respiratory and Digestive Systems</td>
<td>Cooperative Quiz: Topic TBA</td>
<td>The Urinary System</td>
</tr>
<tr>
<td>Wed, Jun 18th</td>
<td>Begin Urinary System</td>
<td>Cooperative Quiz: Topic TBA</td>
<td>Open Lab: Movies and</td>
</tr>
</tbody>
</table>

Murray Jensen  GC 1135  Summer 2003  Page 1  h ttp://www.gen.umn.edu/faculty_staff/jensen/1135/
<table>
<thead>
<tr>
<th>Thu, Jun 19&lt;sup&gt;th&lt;/sup&gt;</th>
<th>Finish Urinary System</th>
<th>TBA</th>
<th>Catch-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fri, Jun 20&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Test #3 (Individual)</td>
<td>TBA</td>
<td>Test #3 (Group)</td>
</tr>
</tbody>
</table>

NOTE: All the above topics and dates are subject to change. Detailed schedule information will be given each day in class.

THE GC 1135 Web Site:  
http://www.gen.umn.edu/faculty_staff/jensen/1135/

| Grading |
|---------|---------|--------|
| 3 Exams ……(100 pts / exam) ………300 pts | A 95-100% 4.00 |
| Quizzes, project and coop quizzes 200 pts | A- 90-94% 3.67 |
| Dissection Lab- 200 pts | B+ 88-89% 3.33 |
| Total 700 pts | B 82-87% 3.00 |
| | B- 80-81% 2.67 |
| | C+ 75-79% 2.33 |
| Ideas for projects: create a web page, read a book and write a report, make a power point presentation, make a model of something, etc… | C 70-74% 2.00 |
| | C- 65-69% 1.67 |
| | D+ 60-64% 1.33 |
| | D 55-59% 1.00 |
| | S MUST BE ABOVE 70% |

Exam Information:
All lecture tests will have an individual and a cooperative component. The individual portion will take place first and will be a typical exam (no notes, no help, etc.) After about 1 hour, you will take the same exam with a group – one answer sheet per group. If your group scores higher on the group section of the exam, you will receive the average of the two scores (individual and group), unless this is an increase of over 10 points. The maximum increase on any exam will be 10 points! However, it is very important to note that no score will ever be lowered due to the cooperative section - if your group score is lower than the individual score, you will simply receive the individual score. (Note: my experience shows that students lean quite a bit during this group portion of the test!)

If you have to make-up an exam, you will NOT have the ability to participate in a group exam, and your individual score will be your final exam score. No exceptions to this policy.

Coop Quiz Information
There are two parts to a coop quiz. First, you will take a quiz on an individual basis and turn-in your answers to the Teaching Assistant. Second, after everyone has completed the individual portion of the quiz you will be put into groups where you will again take the quiz, but now you will be able to talk to your group members about the quiz and you will complete one answer sheet per group. (Note: Murray may sometimes have different questions in the group portion of the quiz.) Your coop quiz score will be the average of the individual quiz and the group quiz scores. All students must take both the individual and cooperative portions of the quiz, if you take only the individual portion you will receive only half credit (a maximum of 7 or 8 points) on the quiz. Most all coop quizzes will have 30 questions, but all coop quizzes will be worth 15 points. The goal of all coop quizzes is to help you prepare for lecture exams.
THERE ARE NO MAKE-UPS FOR COOP QUIZZES!

IF you miss the dissection lab 3 times, you will fail GC 1135. No exceptions.

Required texts
Text Book / Lab Book / CD ROM / Study Guide  (A large packet)
Dubuque, IA: McGraw Hill.

Murray’s Office Hours: In the computer room during computer lab time and also by appointment.
Phone: 612-625 - 0093
E-mail: jense005@tc.umn.edu  (I respond much quicker to e-mail.)

Primary Lab Contact - for the dissection lab:
Carl Lundin (Lab Coordinator)
Phone: 625-7812
E-mail: lundi006@tc.umn.edu  - Web: http://www.gen.umn.edu/faculty_staff/lundin/

Secondary Lab Contact
(IF you cannot reach Carl or Murray, then try Chas Somdahl at somda001@umn.edu
Note: only Murray and Carl have access to lab performance data.)

TA Office Hours are held in the Biology Helper Cell (Room 304 Appleby; 625-6889):
(Times to be announced)

Course Project (2 different options) - 30 Points

Option 1 - Read a book (20 Points)
You must read a book, and not the textbook, outside of class that relates to human anatomy and physiology. Some anatomy and physiology books are easier to read than others. Bonus points will be give to students who elect to read a more difficult (Group 2) book.

<table>
<thead>
<tr>
<th>Group 1 - More difficult books (30 points)</th>
<th>Group 2 - Not quite as difficult (25 points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*When the Air Hits Your Brain - Frank Vertosick</td>
<td></td>
</tr>
<tr>
<td>*The Trouble With Testosterone- by Robert M. Sapolsky</td>
<td></td>
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<tr>
<td>*The Malaria Capers - Robert S. Desowitz</td>
<td></td>
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<tr>
<td>Controlling Human Heredity - Diane B. Paul</td>
<td></td>
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<tr>
<td>The Double Helix - James Watson</td>
<td></td>
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<tr>
<td>Mapping Fate - Alice Wexler</td>
<td></td>
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<tr>
<td>Who Goes First - Lawrence K. Altman</td>
<td></td>
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<tr>
<td>Genome - Matt Ridley</td>
<td></td>
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<tr>
<td>Sperm Wars - Robin Baker</td>
<td></td>
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<tr>
<td>(IF you read a book in group 1, you will up to 5 bonus points)</td>
<td></td>
</tr>
<tr>
<td>*The Hot Zone - Richard Reston</td>
<td></td>
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<tr>
<td>Doctor on Everest -Kenneth Kamler</td>
<td></td>
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<tr>
<td>It's Not About the Bike - Lance Armstrong</td>
<td></td>
</tr>
<tr>
<td>A Not Entirely Benign Procedure : Four Years As a Medical Student, Perri Klass,</td>
<td></td>
</tr>
<tr>
<td>IF you want to read a book that is not on the list, feel free to propose a different one. Just show me (Murray) the book prior to the start of lecture. The key is that the topic of the book is linked to anatomy and physiology.</td>
<td></td>
</tr>
</tbody>
</table>

* = Highly Recommended!

Much more information about each book can be found on the GC 1135 Web site .. Look for “Books”
http://www.gen.umn.edu/faculty_staff/jensen/1135/books.htm
Book Reports - I want you to write a one-page summary of the book. (NO MORE THAN ONE PAGE!) At the top of the page should be your name, test ID number, the title and author of the book, and also if the book is from Group 1 (more difficult) or Group 2 (easier books). The first paragraph or two, or three, should be a summary of the book. The last paragraph of the report should be your opinion of the book - do you recommend it to other GC1135 students? Book reports MUST BE TYPED and I may have you e-mail them to me at a later date, so keep your files! Please remember, my goal for this project was for you to read a book - as opposed to writing a critical analysis of the book - so in the body of the report just prove to me that you read your book.

PLUS

Chapter Notes: For each chapter you read, I want to see 1/3 to ½ page of written notes. I will NOT carefully read these notes, but you must submit them via stapling them to the your official book report. The reason for these notes is two fold. First, to help you create your report at the end of the book, and second, to provide evidence that you read the book and did not just copy the report off the Internet.

Option 2 - Do Something Cool! (30Points)

Do Something Cool! Details will be provided in class. You may work either in groups, or on an individual basis. I am especially interested in artwork or other projects that you typically do not see in a science course. This is a chance to do something different! Have fun with the freedom. See Murray or the TAs for ideas and help.

http://www.gen.umn.edu/faculty_staff/jensen/1135/

Course Requirements

Grading and Exams

Quizzes, projects, writing assignments, and many other types of activities will be given during most every class meeting. If you miss class, you will not be given an opportunity to make up these activities, i.e. NO POINTS! Also, if you arrive late for class you may not take a quiz that has been already completed. DO NOT BE LATE FOR CLASS. Some quizzes will be completed in groups, and some will be taken individually.

Exams - Students must complete exams 1, 2 and 3, but the lowest score on the three exams will be dropped. Exams 1, 2 and 3 will each have 50 multiple-choice questions and be worth 50 points each. i

Your lab grade will be reported to me as a percentage of total points that you have accumulated in the lab portion of the course. You must complete the lab requirements to receive a grade for GC 1135. If you have administrative questions about the 1135 lab, contact Carl.

VERY IMPORTANT: IF YOU MISS THREE LABS, YOU WILL AUTOMATICALLY FAIL GC 1135. NEVER MISS A LAB!

GRADING

<table>
<thead>
<tr>
<th>Grade</th>
<th>GPA</th>
<th>Percent</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.00</td>
<td>95-100%</td>
<td>Represents achievement that is outstanding relative to the level necessary to meet course requirements.</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
<td>90-94%</td>
<td>Represents achievement that is significantly above the level necessary to meet course requirements.</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
<td>88-89%</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
<td>82-87%</td>
<td></td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
<td>80-81%</td>
<td></td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
<td>75-79%</td>
<td>Represents achievement that meets the course requirements in every respect.</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
<td>70-74%</td>
<td></td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
<td>65-69%</td>
<td></td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
<td>60-64%</td>
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</table>
D 1.00 55-59% Represents achievement that is worthy of credit even though it fails to meet fully the course requirements.

S MUST BE ABOVE 70% Represents achievement that is satisfactory, i.e., is equivalent to a 2.00 and meets or exceeds the course requirements in every respect. If the course is taken on an S/N basis and the student does not score above 70%, the grade N (No Credit) will be assigned.

F 0 54% or lower Represents failure and signifies that the work either (1) was completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an I.

I 0 Students must arrange an I prior to the Final Exam. An I grade will be assigned only when the student has completed over 90% of the course at a passing grade, and excusable circumstances, such as surgery, prevent the completion of the last 10% (or less) of the course. The I grade is very rarely used!!

IMPORTANT: You must make arrangements to receive an Incomplete; these arrangements must be made prior to the Final Exam. Never just assume that you can get an I in any course – you must talk to the instructor.

"Extra Credit" or "Extra" Work"--Students who have not completed assigned or required work, or have not done well on it, sometimes ask instructors to allow them to do "extra" work to raise their grade in a course. Unless the instructor has given all students in the class the same opportunity, such requests must be refused because granting them provides an unfair advantage that other students did not have.

It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students with disabilities are encouraged to contact me early in the quarter to discuss their individual need for accommodations.

IF you are not satisfied with how Murray Jensen is conducting this class (teaching, grading, etc.) contact Dr. Terry Collins (Room 240 ApH, 612-625-5366).

Official U of M information on grading can be found at:
http://www1.umn.edu/usenate/policies/gradingpolicy.html

What is the course about?: This is an introductory course that surveys the main organ systems of the human body, placing some emphasis on their relationships to normal and abnormal health. Students will learn to identify and locate many anatomical structures and understand how each works, both alone and in cooperation, to maintain normal functioning of the human organism. At the heart of the course is the concept of homeostasis, which describes both the process of maintaining numerous variables in the body within narrow, physiological limits and the state achieved by that process. Pair and group work, discussion, analytical thinking, and writing are important components of the course.

GC 1135 course objectives: To develop an understanding of and appreciation for how the body is constructed and how it functions, resulting in an improved ability to make intelligent, healthy choices in daily living and an increased self-advocacy for one's own health and medical care.

Student Outcome Objectives: After completing this course, students should

✔ have an understanding of basic chemistry as it applies to the human body, including the major types of bonds, pH, inorganic versus organic molecules, and the major groups of Biologically Important Molecules (BIMs);

✔ be able to describe the major components of a eukaryotic cell, understand the various modes of cell transport, and be able to describe the processes of cell division (mitosis and meiosis);

✔ be able to identify the major systems in the body and name their organs and organ parts;

✔ have a working knowledge of the basic physiological processes of each system, and how each contributes to homeostasis;
be able to distinguish between what is macroscopic and what is microscopic, and between “parts” and “processes;”
be able to distinguish between what is macroscopic and what is microscopic, and between “parts” and “processes;”
be able to determine what information is needed, supply or find it, and apply it;
be able to write brief, clear, informative papers on topics that are related to anatomy and physiology and health.

Student responsibilities: You are expected to attend each class, arriving on time and remaining until class is dismissed. You are expected to act like an adult. This is college, you do not have to be here – if you don’t want to be in class, please drop the course and make room for others who what to attend. You are expected to read text assignments and material in the packet, and complete CD-ROM assignments before coming to class, and to participate in class discussions, group work, and writing exercises. You must act responsibly toward the other members of any group in which you are working.

GENERAL POLICY INFORMATION

Attendance
You are expected to attend all class sessions. If you miss a quiz you will NOT be allowed to make it up. Make-ups of exams will be allowed ONLY if a valid excuse is produced.

Incompletes
Incompletes (grade of “I”) will not be given to cover-up poor performance or attendance, but will be assigned if and only if you are not able to complete the last section of the course – for example, if you are in a serious car accident and are hospitalized during the final exam.

Accommodation and Alternative Formats. Reasonable accommodations will be provided for students with physical, sensory, learning, and psychiatric disabilities. Contact the instructor to work out the details of accommodations. Please do this immediately! This material and other class materials prepared by the instructor are available in alternative formats upon request. Please contact your instructor to arrange for Braille, large print, taped, or machine-readable formats. It is your responsibility to provide your teachers with formal documentation from Disability Services to receive accommodations in your university classes.

Please note that General College has an official TTY/TDD phone in room 25 Appleby; students may use this phone. The number is 612-626-1014. For more information on Disability Services, check out the Disability Services home page (http://disserv3.stu.umn.edu/index2.html) and the Disabled Student Cultural Center.

Complaints Regarding Teaching/Grading. Students with complaints about teaching or grading should first try to resolve the problem with the professor or teaching assistant involved. If no satisfactory resolution is reached, students may then discuss the matter with the Director of Academic Affairs and Curriculum, 240 Appleby (phone 625-2880), who will attempt to mediate. Failing an informal resolution, the Office of Academic Affairs and Curriculum will facilitate the filing of a formal grievance.

Complaints Regarding Advising. Students with complaints about advising should first try to resolve the problem with the advisor or counselor involved. If no satisfactory resolution is reached, students may then discuss the matter with the Associate Dean, who will attempt to mediate. Appointments with the Associate Dean can be made with Zita Sanzone in 109 Appleby (phone 625-0300). Failing an informal resolution, the Deans Office will facilitate the filing of a formal grievance.

Harassment. The University of Minnesota is committed to providing a safe climate for all students, faculty, and staff. All persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation. Reports of harassment are taken seriously, and there are individuals and offices available for help.

General College EEO Officer’
Student Conduct  The University of Minnesota Student Conduct Code governs all activities in the University, including this course. Students who engage in behavior that disrupts the learning environment for others may be subject to disciplinary action under the Code. In addition, students responsible for such behavior may be asked to cancel their registration (or have their registration canceled).

Scholastic Misconduct  Scholastic dishonesty is submission of false records of academic achievement; cheating on assignments or examinations, plagiarizing, altering, forging, or misusing a University academic record; taking, acquiring, or using test materials without faculty permission, acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement, IV. Student Conduct, page 3, Student Judicial Affairs. Academic dishonesty in any portion of the academic work for a course shall be grounds for awarding a grade of F or N for the entire course.

Plagiarism  Academic dishonesty occurs when students turn in work that is not their own as well as in the case of plagiarism. Plagiarism occurs when written work 1) fails to cite quotations and borrowed ideas from outside sources, including the World Wide Web and other student work, 2) fails to enclose borrowed language in quotation marks, and 3) fails to put summaries and paraphrases in the writer’s own words. The definition of plagiarism was derived from Diana Hacker’s “A Writer’s Reference”, Fourth Edition. Boston: Bedford/St. Martin’s, 1999.

Credits and Workload Expectations  For undergraduate courses, one credit is defined as equivalent to an average of three hours of learning effort per week (over a full semester) necessary for an average student to achieve an average grade in the course. For example, a student taking a three credit course that meets for three hours a week should expect to spend an additional six hours a week on coursework outside the classroom.

What will exam questions look like?

1. Which of the following lists best illustrates the idea of increasing levels of organization?
   A. cells, tissues, organelles, organs, systems
   B. tissues, cells, organs, organelles, systems
   C. organs, organelles, systems, cells, tissues
   D. organelles, cells, tissues, organs, systems

2. When a body is in the anatomical position, it is
   A. standing erect with the face forward.
   B. standing erect with the face turned to the side.
   C. lying on the back with the face forward.
   D. lying on the back with the face turned to the side.

3. If a strand of DNA molecule contained the base sequence C, T, A, G, C, the complementary strand would contain the base sequence
   A. A, G, C, T, A.
   B. G, A, T, C, G.
   C. C, T, A, G, C.
   D. T, G, C, A, T.

4. Which of the following contain nitrogen?
   A. all 7 items contain nitrogen
   B. 1, 3, 4, 5, & 7
   C. 4, 5, 6, & 7
   1 water
   2 carbohydrates
   3 glucose
5. How many of the following number associations are correct under normal situations? (8 items listed)

- B. 5.
- C. 6.
- D. 7.
- E. 8.

- 20 different amino acids
- 5 lumbar vertebrae
- Survive 4 days without water
- 46 DNA molecules in a sperm cell
- 12 thoracic vertebrae
- 800 different genes in a human
- Males have 11 ribs, but females have 12.
- An egg contains 23 chromosomes

6. Which of the following is FALSE of sickle cell anemia:
   A. Sickle cell is a disease of a protein.
   B. Sickle cell is a genetic disease.
   C. Sickle cell is a disease of the hemoglobin.
   D. Sickle cell can be described both as a protein and a DNA event (disease).
   E. Sickle cell is a disease caused by 46 different genes.

7. How many of the following are carbohydrates? (5 items listed)

- A. 1
- B. 2
- C. 3
- D. 4
- E. All 5

- Glucose
- Sucrose
- DNA
- Glycogen
- HDL

8. Which of the following biochemicals is not correctly identified.
   A. Lipids - store energy and are a primary component of membranes.
   B. Proteins - are frequently enzymes and cell membrane receptors.
   C. Nucleic Acids - genetic material that is found in both eggs and sperm.
   D. Sugars - are used in the process of making proteins.
   E. Glucose - sugar that is commonly found in blood.

6. How many of the following body regions are superior to the thoracic cavity?

- A. 1
- B. 2
- C. 3
- D. 4
- E. All 5

- Umbilical
- Pedal
- Cervical
- Oral
- Otic

8. Which of the following is FALSE of genes and DNA?
   A. In terms of length, genes and chromosomes are the same size.
   B. There are approximately 30,000 genes in the human genome.
   C. There should be 23 strands of DNA in an egg and a sperm.
   D. A skin cell in your hand should contain 46 strands of DNA.
   E. DNA carries information for making proteins.
Commonly Used Medical Terms

1. **Anoxia**: a deficiency of oxygen.
   
   (Example) The patient's lungs were not functioning properly, causing her to become anoxic.

2. **Biopsy**: the removal and examination of live tissue.

3. **Cirrhosis**: a chronic disease, particularly of the liver, characterized by an overgrowth of connective tissue.

4. **Congenital**: existing at birth.

5. **Cyanosis**: a bluish discoloration of the skin or mucous membranes caused by deficient oxygenation of the blood.
   
   (Example) People become cyanotic during an interruption of breathing. The bluish skin characteristic of cyanosis results from a decrease in the amount of oxygen.

6. **Edema**: excessive accumulation of fluid in the body tissues; causes swelling.
   
   (Example) Edema causes the tissues to swell. Blockage of lymphatic drainage can cause tissue edema.

7. **Embolus**: an intravascular clot that is not fixed to a wall, but rather floats within the blood.
   
   (Example) Emboli are potentially dangerous because they can become stuck in smaller vessels. The blood clot, or piece of debris, is called an embolus; when it becomes lodged it is termed an embolism.

8. **Heart Murmur**: an abnormal heart sound.

9. **Hemorrhage**: the escape of blood from the vessels by flow through ruptured walls; bleeding.

10. **Ischemia**: a local decrease in blood supply resulting from obstruction of arterial inflow making it inadequate to supply sufficient oxygen and maintain aerobic respiration.
    
    (Example) People with myocardial ischemia often experience pain in the chest or left arm area. The degree of ischemia can be decreased by vasodilator drugs. A tissue is said to be ischemic when it receives an inadequate supply of oxygen.

11. **Jaundice**: an accumulation of bile pigments in the blood producing a yellow color of the skin.

12. **Metastasize**: to spread (as a disease) from one body part or organ to another not directly connected to it.

13. **Myocardial infarction**: "heart attack"—an area of necrotic tissue in the myocardium caused by an interruption of blood supply to the area.
    
    (Example) The patient is recovering from a myocardial infarction.

14. **Necrosis**: death of a cell or tissue caused by disease or injury.
    
    (Example) When examined, the necrotic tissue usually appears opaque. Gangrene is a massive necrosis of tissue.

15. **Paralysis**: the loss of muscle function or of sensation.

16. **Phlebitis**: an inflammation of a vein.

17. **Shock**: failure of the cardiovascular system to deliver adequate amount of oxygen and nutrients to meet the metabolic needs of the body due to inadequate cardiac output.
    
    (Example) The development of shock occurs in stages. The causes of shock are many and varied. The victim went into shock.

18. **Stroke**: a condition in which a cerebral blood vessel is blocked—often leaving a part of the brain without oxygen and thus leading to ischemia and possible necrosis.
    
    (Example) The patient had a stroke.

19. **Stenosis**: constriction or narrowing.

20. **Tumor**: an abnormal growth of cells; a swelling; cancerous at times.

21. **Thrombosis**: the formation of a blood clot stuck to a vessel wall.
    
    (Example) The formation of a thrombus in a coronary artery is called a coronary thrombosis. Other studies have revealed alterations in blood-clotting characteristics in persons prone to thromboses.

22. **Ulcer**: a lesion or erosion of the mucous membrane, such as gastric ulcer of the stomach.

23. **Vascular**: pertaining to channels or vessels.

24. **Aneurysm**: an expansion or bulging of the heart, aorta, or any other artery.