

COURSE SYLLABUS v4

COURSE OBJECTIVES :1: TO BE ABLE TO DEFINE AND MEASURE AGING IN DIFFERENT BIOLOGICAL SYSTEMS, 2: TO UNDERSTAND THE EVOLUTIONARY BASIS OF AGING, 3: TO UNDERSTAND THE INTRINSIC AND EXTRINSIC PROCESSES THAT REGULATE LONGEVITY, 4: TO UNDERSTAND THE STOCHASTIC MECHANISMS UNDERLYING SENESCENCE, 5: TO BE ABLE TO INTEGRATE THESE MECHANISMS INTO A FUNCTIONAL SYSTEMS BIOLOGY UNDERSTANDING OF HUMAN AGE-RELATED DISEASES AND SENESCENCE, 6: TO UNDERSTAND THE EVOLUTION OF HUMAN LONGEVITY, AND 7: TO CRITICALLY EVALUATE PRESENT AND PROSPECTIVE PRO-LONGEVITY INTERVENTIONS FOR OUR SOCIETY.

- **THE COURSE IS ORGANIZED ON ANSWERING THE FOLLOWING 7 QUESTIONS BASED ON THESE 7 LEARNING OBJECTIVES**

Lecture # / Date	Lecture Topic	3e Text Chaps. Lecture # & Topic	Quizzes, etc.
Class Question: Note: q=quiz scheduled for that class meeting.			
<u>What is aging? (Objective 1)</u>			
1	9 Jan	Introduction to Course; Perspectives on Aging	1 syllabus & expectations; Definitions of aging, etc..
2-3	11-16 Jan	Measurement of Aging at the Population Level	2 L2: <i>study group seating</i>
4-5q	18-23 Jan	Measurement of Aging at the Individual Level	3 L5: <u>quiz 1 on chaps 1-2</u>
<u>Why do we age? (Obj.2)</u>			
6-7	25 Jan	Evolutionary & Comparative Aspects of Aging	4 L7: <i>posting of new chap 7</i>
<i>Note: 3e Chap 5 not assigned. Useful to read it on your own as background for your term papers</i>			
<u>What mechanisms are involved in determining our Longevity? (Obj. 3)</u>			
8q-9	30 Jan-1 Feb	Empirical Methods of Modifying The Rate of Aging	6 L8: <u>quiz 2 on chap 3-4</u>
10	6 Feb	Familial & Social Aspects of Longevity and Aging in Humans	Flipped 8 <i>study video lecture</i>
11q-13q	8-15 Feb	Conserved Genetic Mechanisms of Longevity Regulation & Aging	7 L11: <u>quiz 3 on chap 6&8</u> L11: <i>undgr. paper outlines due.</i>
14	20 Feb	Exam 1 (Chaps 1-6+8 inclusive (not 7); note 14 day delay for studying. No excuses!)	
<u>What determines the onset of senescence? (Obj. 4)</u>			
15-16q	22 & 27 Feb	Mechanisms Underlying The Transition from Health to Senescence	9 L15: <i>grad student essay 1 due</i> L15: <u>quiz 4 on Chap 7</u> L16: <u>quiz 5 on chap9</u>
<u>What is the mechanistic basis of senescence? (Obj.5)</u>			
17q	1-Mar	Human Senescent Phenotypes (Flipped).	revised 3e Chap 5 focused on basic mechanisms
18-19	6-8 Mar	Stochastic Mechanisms of Senescence	10 L18: <i>grad std. essay 1 due</i>
----	12-16 Mar	<i>Spring Break - R & R (or writing your term paper?)</i>	
20-21q	20-22 Mar	Metabolic & Mitochondrial Mechanisms of Senescence	11 L21: <u>quiz 6 on chap 10</u> <i>last day for a W is Mar 25</i>
22-23q	27-29 Mar	Senescence as a Breakdown of Intracellular Regulatory Processes	12 L23 <u>quiz 7</u> on chaps 11
24-25q	3-5 April	Senescence as a Breakdown of Intercellular Regulatory Processes (Note: this lecture may be flipped as well)	13 L25 <u>quiz 8</u> on Chaps 12- <i>grad student essay 2 due</i>
<u>Why do humans live so long?: A systems biology view (Obj. 6)</u>			
26-27q	10-12 Apr	An Evolutionary & Systems Biology View of Longevity & Senescence in Humans .	14 L27: term papers due. L27: <u>quiz 9</u> on Chap 14 end of class <i>grad students schedule oral presentation of term paper with me</i>
<u>What Pro-Longevity Interventions are needed in society? (Obj. 7)</u>			
28q	17 Apr	Aging related research and Its Impact on Society (Flipped)	15 L28: <u>quiz 10</u> on chap 15
29	19 Apr	EXAM 2 (Chaps 7 +9-15 inclusive)	
Study Day	24 Apr.	Exam 2 handed back. Corrections due on Final Exam day. No late corrections accepted.	

Final Exam 27 April @ 12:30 pm . Exam will be cumulative (Chaps 1-15 plus lecture data).

Texts: Required - Biology of Aging: Observations and Principles, 3rd edition by Robert Arking, Oxford University Press, 2006. You should also check for used copies or e-copies. [Note: I have written an updated 4th edition, but it will not be in print until next June. The lectures contain the updated material. You should first read the 3e text chapter, and then study the current slides for that chapter before class. Make notes where you have questions, & bring them up in class.]

Prereqs: Bio 3070 (Genetics) and Bio 2600 (Cell Biology) are required prereqs for this course. A knowledge of basic physiology is helpful but not required.

Suggested Websites: You may wish to go online and check out various websites to supplement the information presented in class and text. The best site for doing a literature search is PubMed at <http://www.ncbi.nlm.nih.gov/Entrez/index.html>. The best way to access this site is via WSU website: Log in: Libraries; Article databases; click "P"; scroll to bottom to find Pubmed@Wayne; click ; enter appropriate search terms into PubMed search box. Other good sites to check out are: <http://www.nih.gov/ni/> <http://www.geron.org/> , <http://www.afar.org/> , <http://www.arclab.org/> , <http://www.bmn.com/>, or Google Scholar.

Office Hours: Tuesday 2:30-4pm in my office or most Weds from 1-3 pm in the STEM study hall, or by appointment. Telephones: office (3103 Biol. Sci. Bldg), 577-2891; lab 577- 2850. Email: aa2210@wayne.edu. I prefer email communication, but I will certainly meet with you personally if desired.

Course Details:

1.Quizzes: the quizzes will each usually have some relevant multiple choice as well as problems and/or mini-essay questions and will be done in class over a 10-15 minute period. Some quizzes will use Scantrons (form 882-E, green, 100 questions), some will not. To be safe, please bring one to class for each quiz as well as for the three exams). The point of the quizzes is to give you feedback on how well you understand the data and concepts being presented, and make it possible for you to improve your understanding - and grades - prior to the midterms or final exam

2.Midterms & Final exam: details of these will be presented in class prior to the exam.

3.Seating Arrangements: In this class, learning will partly involve me giving you information in the form of lectures. It will also involve me presenting you with interesting questions, problems or paradoxes, with the goal of having you solve these puzzles in class. Problem solving usually is more effective if several students pool their knowledge and insights then if you each try to solve these puzzles individually. Therefore, beginning with Lecture 2, you will sit with other members of the class (friends or strangers, as you wish) in groups of ~5-6 for all lectures. Sitting together makes it easier for you to talk to one another during these problem sessions. I will indicate where each group is to sit in the classroom. I suggest that each member of the study group should exchange contact numbers with the others so that you may discuss material online or in person.

For quizzes and exams, you will seat yourselves in an every other row, every other seat arrangement. When the quiz is done, you will revert to your group seating arrangement

4.Term Papers

Undergrads: Term Papers:

4.1. **The Learning Goal to be achieved by writing a term paper is to assist you to understand the answers to Course Objectives 3, 4, 5 and 7 as listed on the top of page 1 of this syllabus.**

4.2. **The term paper topic is as follows:** I will give you a list of 77 age-related diseases. You will choose a specific disease taken from this list or from the literature (there are more than 77 such diseases and you are not limited to that list.).

4.3. Choose a specific age-related disease. Briefly describe it. For that disease, describe (1)the mechanisms that allow the expression of the disease in late life, and (2) which processes of the health span had to fail in order for the disease to be expressed. (3) Discuss what environmental and/or endogenous factors helped to bring about this failure of health and the appearance of disease. (4) What specific intervention might prevent the initial expression of the disease if they had been administered prior to the onset of the disease? (5) What biomedical or societal failures lead to the failure of the prevention of the disease for the society as a whole. Your answers must be based on appropriate scientific data. Each student will individually write their own term paper, but you may certainly draw on the critiques and comments of members of your group, provided that you acknowledge any such help in writing at the end of your paper in a short paragraph. Modern science is based on individuals acting as members of a team. I encourage you to be imaginative in the use of data; speculate if you wish to but please label it as such.

4.4 Each student may, if they wish, hand in on Lecture 11 an outline of your proposed term paper for my review, including your key references (no points involved). Your term paper is due on Lecture 27. There will be a grade

penalty for late submission. You will submit it in electronic form via SafeAssign and also submit a printed version to me in class at the end of that lecture.

- 4.5 *Your term paper must be more than just a description of some disease, for it must deal in detail with the ultimate and proximate aging mechanisms involved in that specific failure of the health span as stated above.*
- 4.6 Your paper should be no shorter than 10 text pages, in addition to graphs, tables, diagrams, etc. Use 1 inch margins all around, single line spacing, and 12 point Times New Roman font or equivalent. There is no upper limit to the paper, You are telling a story- make sure to tell an organized and complete story. No one likes an incomplete story.
- 4.7 Your term paper will be graded according to the rubric attached to this syllabus; it would be smart to plan and write it using the rubric as a guide. Do not be superficial! It is unlikely that you will do a good job with a superficial or short or simplistic paper.

Grad students: Intervention Proposal: You will write about an intervention that is likely to extend the health span. You may do this using one of two different approaches. *First*, you may critically examine an existing, known intervention and describe the present state of our knowledge regarding the biological mechanisms which are thought to bring about this health span extension. Consider whether the existing literature is overlooking some pertinent detail (e.g., the role of water in CR/DR, etc.) If so, then propose a new approach to testing if and how these details affect the health span intervention. Does this lead to a new and better understanding of how to extend health span? *Second*, you may propose to critically test a new (or highly modified) intervention for health span extension. In either case, you should pay attention to details and engage in critical analysis, both individually and with others. **You are, in other words, writing the rationale and research strategy portions of an R01 grant proposal.** You are expected to know and use the relevant scientific literature. You may discuss the literature and try out ideas with other group members, but the final proposal is to be written by you alone. Give credit to others if you incorporate their ideas. Your paper is due on Lecture 27. Please submit it in electronic form via SafeAssign and also submit a printed version to me in class at the end of that lecture. You will give me an oral report on your research proposal in a ~30-45 minute session to be held in my office at some mutually convenient time. Questions will be asked to ascertain how well you have thought through your material. 90 % of the term paper will be based on the content of your written paper, 10% will be based on the quality of your presentation and responses to questions in our oral discussion of your paper.

Grad Students: Essays:

Each grad student will choose, review, critique, and describe the relevance to your proposal of at least four scientific papers pertinent to your proposal topic, at a rate of two papers/essay. You are expected to read more than just four papers; the essays are assigned so as to get you started reading and thinking about the literature. Each essay is due as listed in the syllabus.

5. Grading:

I use mastery learning techniques. This means that I will provide rapid feedback so that you may correct your errors I do not grade on a curve, but I allow multiple opportunities for self-correction and learning.

There are 10 short quizzes at 10 points each. Total= 100 pts.

There is two midterm exams at 100 points each and your cumulative final at 200 points, plus your term paper/oral presentation at 100 or 200 pts as below.

You may not drop your midterm or final exam grades. All the material is important. Do not count on your lowest exam grade disappearing.

Bio 5750:

100 points - sum of quiz scores

100 points – midterm exam 1

100 points - midterm exam 2

200 points - final exam

100 points – your term paper *start your research on this project early*

600 total points (plus any extra credit points if given)

Bio 7750:

100 points- sum of quiz scores

20 points – two essays on your term paper topic; 1st due 10/3; 2nd due 11/3.

100 points – midterm exam 1

100 points - midterm exam 2

200 points - final exam

200 points - term paper and oral report (90% on content; 10% on presentation)

720 total (plus any extra credit points if given)

Both 5750 & 7750: Correction of Grades

There is no effective learning without correction of errors. Mastery Learning is an effective pedagogical tool.

Therefore you will be encouraged to correct in writing the wrong answers on your eight quizzes or your midterm and receive half-credit if the correction is actually correct. This will work as follows:

You have up to one week after the quiz/exam is handed back to decide whether you want to accept, challenge, or correct your wrong answers.

1. If you accept, do nothing and the grade will be recorded as is.
2. If you believe your answer is in fact correct as written, then write a paragraph or two explaining your reasoning and the scientific data on which you rely (include a copy of all data (tables, graphs, etc. and a citation to its source). Also include your original quiz or exam paper so that I can refer back to your original answer. If I believe your reasoning both sound and logical (i.e., is a reasonable alternative answer), then you will receive full credit. If not, then I will give you a written rebuttal and the grade stands.
3. If you agree that your answer is wrong but want to correct your answer, then type out a paragraph describing the data that makes your original answer wrong. Type a second paragraph describing the data that confirms that the recommended answer is in fact correct. Give a reference to the data that you are citing, and attach a copy if it is not in the textbook or lecture slides. Also include your original quiz paper so that I can refer to your original answer. If your corrections are adequate, then you will receive half-credit for the corrected answer. Thus a grade of 50% could be increased to a permanent grade of 75% if all wrong answers were adequately answered. Note that the highest grade you can obtain via correction is 89.9%. There is some merit in earning an A the first time around.

There is no effective learning without correction of errors. Thus your term papers will also be subject to a modified correction procedure which will be explained in class.

We will have a *final examination* as scheduled. This exam is required and will cover all the material in the course. There will be NO adjustment of the quiz, exam, or final exam schedule to accommodate student's travel plans. Make your travel plans around the exams and quizzes. If you miss a midterm or final exam due to your illness (not someone else's) or death (someone else's), then an adjustment may be made, providing you bring in an official letter or document from your doctor and/or undertaker.

Other Items:

Weighting of grades: I am usually quite demanding as to an A grade - it must represent truly excellent work, which means 90% or higher..

My teaching philosophy is as follows:

1) I am a guide who you have hired to guide you across unknown country. It is my task to show you the path, to point out the important landmarks, and to assist you in comprehending the path. It is your task to walk the trail, to pay attention, and to constantly review the territory you have just passed through with your fellow students in your group and in the class. I can explain and interpret the information for you, but only you can learn the material. The data shows that collaborative student learning, of the type involved in this class, helps individual students learn better. Be active in your group. Slacking off does not yield long term benefits.

2) Since this is an advanced class, I also view our class as a conversation between you, me and the data. Student comments & questions are welcome, especially when we encounter unclear material.

3) The goals of the class are first, to familiarize you with the modern integrative view of the biology of aging and longevity, and second, to help you develop your skills in critical thinking about biological problems.

My solutions for helping you to learn well despite the fast pace of the course are:

1. You should read the assigned text chapter before class. Read the chapter for an overall understanding of the topic.
2. Use the course website on **Blackboard** (<http://blackboard.wayne.edu>). This is a data-driven course - you should ask yourself before class just how the data presented supports or contradicts the concepts discussed in the text. Note those items which are not clear to you and which you will want to have explained in more detail in the lecture - if they are not clear to you at the end of the lecture, you may talk to me after the lecture or make an

- appointment to see me in my office.
3. Literal lecture notes are not and will not be made available since the lecture is recorded and available. Learning requires the active involvement of your mind, and the best way to achieve that is for you to read, listen, write, and organize your own notes. Copies of important visual materials/data used in the lecture which are not in your text will be on Blackboard prior to the lecture. References to important papers from the literature will also be provided in lecture or on Blackboard
 4. Check the web beforehand for any material germane to the day's lecture assignment.
 5. The scheduled **quizzes** are intended to a) encourage you to understand the material we have just covered, and b) show you the topics in which you need some further study before you take the midterm or the final. You are strongly urged to correct in writing each of the quiz questions which you get wrong, by **WRITING** out in detail exactly why your answer is not correct and why the suggested answer is in fact the better choice. I have found that students who ignore this feedback are likely to get a lower course grade than those students who do put forth the extra effort. Why? Because the final exam will probably have questions on the same topics that the class had trouble with earlier. *Failure to correct = failure to understand.*
 6. You should take advantage of the grade correction & extra credit points offered as described above.

Honor Code: This course operates under an Honor Code in which you agree not to seek nor give unauthorized aid on any quiz, exam and/or paper in this course. Collaborative work on your term papers is authorized as described here and in class. All term papers etc will be submitted through SafeAssign and scanned for plagiarism; any paper so defined will be given a grade of F. Do test your paper beforehand and make any necessary corrections. Do not copy another's words without proper citation.

Cheating, plagiarism or other violations of the Student Code of Conduct (see below) will be dealt with severely; a score of zero will be given in the quiz/exam/paper with no opportunity to drop or replace that score, and may also result in initiation of university disciplinary action. Particularly egregious violations will result in your being assigned a course grade of F. In a recent academic year, 9 students in biology were found to be cheating, and 7 of them failed their course while 2 failed the particular assignment. *Because our goal is to help you learn how to not plagiarize in the first place, information on how to avoid plagiarism is provided. If you do not understand how to avoid plagiarism, and would like to read a discussion of cheating and plagiarism see the "Student Code of Conduct," which is posted at <http://www.doso.wayne.edu/judicial/index.htm>.**

Your written work may be submitted to SafeAssignment for a plagiarism check prior to my evaluation of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in SafeAssignment's restricted access database, solely for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all.

Extra Credit Points:

There may (or may not) be extra credit questions on the midterm or final exams, worth up to 10% of the total score. These will usually be essay type questions.

EXAM GRADE DISPUTES / CHALLENGE OPTION

Students will have one (1) week after the return of an exam or a written assignment to challenge a grade for any question. Failure to challenge the grade within this period indicates a willingness to accept the grade as is. The challenge should consist of a written description of why the answer is correct based on other published material that you cite, and why the accepted answer is not totally correct in this instance. It is an opportunity to explore ambiguities in the data. It is not an opportunity to complain. See material on page 3 for further details of the challenge or correction process.

POSTING OF EXAM GRADES

Exam grades will be posted on Black Board by Student ID Number as soon as possible after the exam has been administered. The distribution of scores will also be provided in class.

SPECIAL CONSIDERATIONS FOR INDIVIDUALS WITH DISABILITIES

"If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TTY: telecommunication device for the deaf; phone for hearing impaired students only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Student Disability Services'™ mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University." Please be aware that a delay in getting SDS accommodation letters for the current semester may hinder the availability or facilitation of those accommodations in a timely manner. Therefore, it is in your best interest to get your accommodation letters as early in the semester as possible. Please refer to the SDS website for further information about students with disabilities and the services we provide for faculty and students: <http://studentdisability.wayne.edu/>

RELIGIOUS HOLIDAY CONFLICTS

If you have a conflict with any of the scheduled class or exam times due to religious reasons, you must notify me in writing by class time at least one week prior to the scheduled exam or quiz. No make-up exams will be given unless I am notified in writing by this date.

ADD/DROP POLICY

Add forms will not be signed after the second week of class unless there are truly extenuating circumstances. Our data shows that students who register for classes after the second week have a very high probability of failing. It is not wise to waste your money and time on taking a difficult science course with a high probability of failure.

Drop forms must be signed before the deadline specified by the Registrar's office.

In addition, if you drop the course after 5 weeks, you will be assigned one of the following three marks: WP (withdrew but was passing at the time), WF (withdrew but was failing at the time), WN (withdrew and never attended class or no graded work). Also, any "I" given to a student will automatically revert to "F" if the work is not completed within one calendar year. There are no exceptions. An I grade can only be given after the student signs a contract with me specifying the material that has to be made up and the time lines for doing so. Further information on the grading policy can be found at <http://sdcl.wayne.edu/RegistrarWeb/Registrar/policies.htm>.

Withdrawing:

I encourage you to get help instead of withdrawing. See me or your advisor to find help that meets your needs, so you can save money and graduate sooner. If you need to withdraw, **Monday, January 22, 2017 is the last day you can drop the class and get your tuition refunded.** The last day you can drop this course and have **no record on your transcript is Tuesday Jan. 23. Last drop date**, if you withdraw from the course you will receive a WN on your transcript if you never completed any assignment; a WP if you have greater than 60% of the points possible at the time of your request on exams, class participation and homework; or a WF if you have less than 60% of the points possible at the time of your request. No exams or other grades are dropped or replaced in this calculation. Lab grades are not included in this calculation. You initiate a withdrawal request in Academica (Pipeline), and the system will contact me. I will respond within five business days. **See reg.wayne.edu/students/calendar16-17.php for more important dates.**

SCHEDULE OF TOPICS COVERED

See the first page of this syllabus.

UNEXPECTED UNIVERSITY CLOSURES.

If the University is officially closed (snow, etc.) on an exam day, the exam will be held on the next regularly scheduled class day. Closure of the University is announced by the following mechanisms: 1. the University Newsline (313) 577-5345 *, 2. WSU Homepage (www.wayne.edu) *, 3. WSU Pipeline (www.pipeline.wayne.edu) *, 4. WDET-FM (Public Radio 101.9), 5. by other local radio and television stations

* Note: The information on closures and class cancellations is likely to be found at these locations before it is broadcast by local radio and television stations

OTHER

I am happy to write letters of recommendations for students who earn a final grade of A- or above. A lower grade will require a justification of your performance by you to me if you want a recommendation. Think through your justification before you talk to me - I am susceptible to a well-reasoned and data-based argument as to why you deserve a recommendation and am perfectly willing to recommend students who demonstrate an ability to think logically and well..

Please turn all cell phones off during class and during exams.

Any specific issue not covered by this syllabus will be resolved using University policies. Disputes that cannot be resolved following the guidelines present in this syllabus will be resolved by following the guidelines of the University "Student Due Process" and/or "Student Code of Conduct" protocols.

Biology Rubric for Assessing Writing in Bio 5750: What is Expected of Your Writing.

1. Demonstrates understanding of scientific writing:

- ***abstract summarizes key points and sections;***
- understands what needs to be cited;
- each section has content appropriate to the section;
- graphics integrated into and integral to the paper;
- ***discussion section synthesizes results with literature;***
- ***shows evidence of analytical thinking.***

2. Content, comprehension, and development of ideas:

- follows assignment;
- has a title that fits paper;
- ***has sufficient data and/or information; IMPORTANT!***
- ***has appropriate and challenging content; IMPORTANT***
- ***evidence of original work; IMPORTANT***
- defines technical terms, used appropriately, not gratuitously;
- paraphrases correctly and accurately;
- stays on topic;
- ***conclusion captures main points.***

3. Structure and organization:

- ***clearly organized; IMPORTANT***
- introduction sets up paper and points follow in order;
- shows an understanding of paragraphs;
- topic sentences focus paragraphs;
- flows (has topic sentences, repetition of key words, other transitions).

4. Documenting and Citing:

- ***has adequate citing;***
- paraphrases without excessive quoting;
- sources are introduced appropriately;
- citations match references;
- follows appropriate documentation style.

5. Mechanics (any paper that receives an “unacceptable” in this section must receive an overall score of unsatisfactory):

- correct labeling and referencing of tables and graphs;
- correct word choice;
- correct tenses;
- subject/verb agreement (e.g., data are);
- punctuation, esp. comma use;
- correct use of italics;
- correct sentence structure and syntax;
- concise language appropriate to science.

Overall Score (any paper that receives an “unacceptable” on one or more items must be assessed as unsatisfactory overall.)

I will use this rubric in grading your term papers. The points highlighted by Bold Italic print are important to a good paper and so are items I look for. Their absence will cost you points.

SAME

Scoring Guide for Writing

Scoring Level	Knowledge of Conventions	Clarity and Coherence	Rhetorical Choices
4 - Accomplished	In addition to meeting the requirements for a "3," the writing is essentially error-free in terms of mechanics. Models the style and format appropriate to the assignment.	In addition to meeting the requirements for a "3," writing flows smoothly from one idea to another. The writer has taken pains to assist the reader in following the logic of the ideas expressed.	In addition to meeting the requirements for a "3," the writer's decisions about focus, organization, style/tone, and content made reading a pleasurable experience. Writing could be used as a model of how to fulfill the assignment.
3 - Competent	While there may be minor errors, the paper follows normal conventions of spelling and grammar throughout and has been carefully proofread. Appropriate conventions for style and format are used consistently throughout the writing sample. Demonstrates thoroughness and competence in documenting sources; the reader would have little difficulty referring back to cited sources.	Sentences are structured and word are chosen to communicate ideas clearly. Sequencing of ideas within paragraphs and transitions between paragraphs make the writer's points easy to follow.	The writer has made good decisions about focus, organization, style/tone, and content to communicate clearly and effectively. The purpose and focus of the writing are clear to the reader and the organization and content achieve the purpose well. Writing follows all requirements for the assignment.
2 - Developing	Frequent errors in spelling, grammar (such as subject/verb agreements and tense), sentence structure and/or other writing conventions distract the reader. Writing does not consistently follow appropriate style and/or format. Source documentation is incomplete. It may be unclear which references are direct quotes and which are paraphrased.	Sentence structure and/or word choice sometimes interfere with clarity. Needs to improve sequencing of ideas within paragraphs and transitions between paragraphs to make the writing easy to follow.	The writer's decisions about focus, organization, style/tone, and/or content sometimes interfere with clear, effective communication. The purpose of the writing is not fully achieved. All requirements of the assignment may not be fulfilled.
1 - Beginning	Writing contains numerous errors in spelling, grammar, and/or sentence structure which interfere with comprehension. Style and/or format are inappropriate for the assignment. Fails to demonstrate thoroughness and competence in documentation.	Sentence structure, word choice, lack of transitions and/or sequencing of ideas make reading and understanding difficult.	The writer's decisions about focus, organization, style/tone, and/or content interfere with communication. The purpose of the writing is not achieved. Requirements of the assignment have not been fulfilled.

June 6, 2002

<http://www.csufresno.edu/cetl/assessment/> (click on WritingScoring.doc)

I will use this rubric in grading your term papers. An A paper is at the #4 level.