

Rating Rubrics

For Performance Criteria

February, 2009

The performance criteria are more fully described in another document.

If your class is large, assessing a randomly selected sample of ten student submissions is fine. All student submissions must be graded, however. The grades must be sufficiently important in the course grade to motivate students to do their best work.

In most cases, a 3 should indicate reasonable performance. A 5 or 0 should be unusual (less than 10% of scores). When a performance criterion is used to introduce a skill, however, scores of 0 to 3 should be expected with an occasional 4 or 5.

Performance Criterion	0 Score	1 Score	2 Score	3	4	5
A. 1. Solve problem	Student does not seem to have understood the problem	Student understands the problem, but has made little progress towards a solution	Student has applied suitable methods, but has made significant errors	Student has applied suitable methods with minor mistakes	Student has successfully solved the problems using suitable methods.	Student has solved the problems and gone beyond the solution to describe its significance or limitations.
2. Solve test question(s)	Student has addressed the wrong question(s) or no question at all.	Student understands what is being asked, but has made little progress towards a solution.	Student has started the solution correctly, but either has made significant errors or has not gotten very far.	Student has made minor mistakes or has not finished the solution.	Student has correctly answered the question completely.	Student has gone beyond the correct answer to place that answer in some relevant context.
3. Improve solution	Student does not understand the problem and/or the presented solution	Student seems to understand the provided materials, but is unable to make progress on improvement	Student makes only minor progress on improvements.	Student makes significant progress on improvements, but is unable to complete.	Student completes the requested improvements.	Student makes the requested improvements and places the solution in some relevant context.
4. Extend solution	Student does not understand presented materials	Student understands presented materials, but is unable to progress on extensions	Student makes only minor progress on requested extensions	Student makes substantial progress, but does not complete the extensions	Student completes the extensions.	Student completes the extensions and places the solution in a relevant context.
B. 1. Elicitation	Student does not understand how to do elicitation	Student consults only himself or herself	Student consults only one or two potential users	Student uses only one elicitation method, but does a good job with that method	Student uses more than one method, but makes minor mistakes.	Student uses more than one method and gathers a good set of requirements
2. Determine requirements	Student does not seem to	Student makes significant	Student makes minor mistakes	Student determines the	Student determines	Student goes beyond

	understand the problem	mistakes		correct requirements, but does not organize them well.	correct requirements and organizes them well.	determining requirements to determine some of their implications.
3. Solve with software	Student does not seem to understand the problem.	Student makes only preliminary progress towards a solution.	Student makes significant progress towards a solution, but does not use best practices.	Student makes significant progress and uses best practices.	Student produces an effective solution.	Student produces an effective solution using best practices.
4. Practice Analysis	Student does not seem to understand the problem.	Analysis is partial and trivial.	Analysis is incomplete, but shows substantial progress.	Analysis is effective, but poorly presented or does not use best practices.	Analysis is effective and uses best practices.	Analysis goes beyond what is expected to provide unexpected insight.
C. 1. Design and implement	Student is unable to make any progress on design or implementation	Student makes minor progress on either the design or the implementation	Student makes significant progress on the design and the implementation.	Design and implementation are largely complete, but the design does not match the implementation	Design and implementation are complete and match.	Some analysis is done on either the complete design or the complete implementation.
2. Critique design	Student misunderstand the design	Critique leaves most of the design unaddressed.	Critique addresses most of the design, but is superficial and/or inaccurate.	Good critique of the design with only minor errors or omissions.	Complete critique of the design according to best practices.	Complete critique together with useful suggestions for design improvements.
3. Test and debug	Student is unable to get any tests to work.	Student does one test case.	Student does several test cases, but does not debug correctly.	Student does several test cases according to a reasonable methodology and debugs successfully.	Student adequately tests and debugs program according to best practices.	Student adequately tests and debugs program plus provides suggestions of development practices that could have reduced errors.
4. Use metrics	Student does not seem to understand use of metrics.	Metrics not used appropriately.	Metrics used correctly, but no conclusions or wrong conclusions made.	Metrics used correctly and some correct conclusions made.	Metrics used correctly and appropriate conclusions drawn.	Metrics used correctly, appropriate conclusions drawn, and some analysis provided of why the calculated results occurred.
D. 1. Discuss	Students do not work together.	Students work together, but do not accomplish very much.	Student team has accomplishments, but is dominated by one or two students.	Student team has full participation, but does not consider all the aspects expected.	Student team has full participation and completes the task assigned well, but the report is disorganized.	Student team has full participation and produces a well-organized report.
2. Divide and complete	Students do not work together.	Students work together, but do not accomplish very much.	Student team has accomplishments primarily due to one or two members.	Team has full participation, but does not complete the project.	Team has full participation and completes the project successfully.	Team has full participation, completes the project successfully, and provides a useful analysis of their own teamwork.
3. Work cooperatively	Students seem unable to cooperate.	Students work together, but do not accomplish very much.	One or two team members dominate the accomplishments	Team has full participation, but does not solve the entire	Team has full participation and solves the problem.	Team has full participation, solves the problem

				problem or makes undiscovered mistakes.		correctly, and provides useful analysis of their own teamwork.
4. Work over time	Students do not work together.	Students work together, but do not accomplish very much.	One or two members dominate the team's accomplishments	Team has full participation, but does not complete all the problems correctly.	Team has full participation and completes all the problems correctly.	Team has full participation, completes all the problems correctly, and provides useful analysis of their own teamwork.
5. Evaluate alternatives	Students do not work together.	Students work together, but accomplish little.	One or two members dominate.	Team has full participation, but does not effectively consider all alternatives.	Team has full participation and reasonably evaluates all alternatives.	Team completes assignment with full participation and goes beyond the assignment in some useful way.
E. 1. Discuss	Student does not seem to understand the situation	Student can come up with only one issue for this situation and cannot discuss important ramifications of that issue.	Student can come up with one issue and discuss its implications.	Student can come up with more than one issue, but provides only superficial discussion.	Student can come up with more than one issue and discusses them well.	Student can come up with more than one issue, discuss them well, and provide a reasonable procedure for resolving the issues.
2. Play or debate	Student(s) does not seem to understand the situation.	Student(s) uses only one issue.	Important issues are presented, but important implications are not.	Important issues and important implications are presented, but not fully explored.	Situation is fully explored.	Situation is fully explored and a reasonable procedure for resolving the issues is given.
3. Evaluate and improve paper	Student does not seem to understand the important points of the paper at all.	Student understands many, but not all of the important points.	Student fully understands the paper.	Student understands the paper, but provides superficial or incorrect improvements.	Student provides useful improvements.	Student provides useful improvements and compares them to what is already in the paper.
4. Prepare a paper	Student does not seem to understand the ethical dilemma.	Student understands the dilemma, but does not present a position.	Student presents a position with some support for that position.	Student presents a position and evaluates that position with respect to other positions, but is not convincing or the paper is poorly organized.	Student does an excellent job of presenting a position and evaluating it with respect to other positions.	Student presents a position and justifies it well. Student also generalizes the ethical dilemma and describes how their position and other positions would be evaluated in the more general dilemma.
F. 1. Give presentation	Presentation is not on topic.	Presentation is not close to complete.	Presentation is complete, but poorly organized or presented.	Presentation is complete, well-organized and presented, but gives no analysis or evaluation.	Presentation is complete, well-organized and provides well-known analysis or evaluation.	Presentation is complete, well-organized, and provides innovative analysis or evaluation.
2. Write user manual	Manual explains nothing.	Manual explains some use, but leaves out major functionality.	Manual is not complete, but poorly organized or written.	Manual is complete, but poorly organized or	Manual is complete and well-written.	Manual is complete, well-written, and includes useful

				written.		materials for a variety of potential users.
3. Write test plan	Plan contains no tests.	Plan contains a few tests, but coverage is inconsistent and incomplete.	Plan contains a reasonable set of tests according to some methodology, but is poorly written or organized.	Plan contains a reasonable set of tests and is well-written and organized.	Plan organizes a reasonable set of tests according to priority based on some reasonable criterion.	Plan provides indications of the errors that can be found by each test.
4. Group discussion	Group does not stay on topic for very long.	Group deals with the topic at a very superficial level.	Group has a reasonable discussion of the superficial aspects that does not have full participation.	Group goes beyond the superficial, but is dominated by only a few members.	Group has a good discussion with nearly full participation.	Group has a good discussion that leads to useful conclusions with full participation.
5. Structured interviews	Student does not understand how to conduct an interview.	Only one or two interviews are conducted and they are not well-structured.	More than two interviews are conducted, but they are not well-structured.	More than two well-structured interviews are conducted, but the student does not formulate a reasonable set of requirements.	More than two well-structured interviews of a variety of potential stakeholders are conducted, but the resulting requirements are not effective or well-organized.	Nearly all important potential stakeholders are represented in the interviews and the resulting requirements are well-organized and effective.
G. 1. Discuss impact	Student's comments indicate a lack of understanding	Student does not contribute to the discussion, but does follow it.	Student's contributions are limited to agreeing with previous speakers	Student makes small contributions	Student makes significant contributions to the discussion.	Student provides analysis showing significant insight.
2. Prepare report	Student does not appear to understand important characteristics of the users and/or the software	Student describes the users and the software correctly, but not the impact.	Student misses many important impacts, but does correctly describe some impacts.	Student describes all the important impacts, but provides no analysis.	Student provides only minimal analysis.	Student provides significant analysis.
3. Configuration report	Student does not understand the assignment.	Student describes the configuration features of the software, but not how it should be configured for this community.	Student describes how the software should be configured, but makes significant mistakes in this description.	Student correctly describes how the software should be configured, but does not explain why.	Student provides some justifications for how the software should be configured.	Student provides justifications which demonstrate significant insight and analysis.
4. Evaluate alternatives	Report is limited to describing the alternatives, and makes mistakes doing so.	Report correctly describes the alternatives, but does not address the service to society or specific stakeholders.	Report asserts how each alternative would serve society and/or specific stakeholders, but does not justify the assertions.	Report provides incorrect or incomplete justifications.	Report provides adequate justifications and analysis.	Report provides excellent justifications and analysis.
H. 1. Answer questions	Response shows lack of understanding of the paper and/or the questions.	Response addresses all questions, but merely quotes the paper.	Response shows some understanding of some aspects of the paper.	Response shows understanding of all important aspects of the paper.	Response includes explanation, examples, or justifications beyond those in the paper for several of the questions.	Response provides significant insight into the work reported in the paper which is not already contained in the paper.

2. Keep list	List is not available.	List is too small.	List is not sufficiently diverse.	List meets minimum requirements for size and diversity.	List goes well beyond the minimum requirements for size and diversity.	List shows the student has searched for relevant other articles on at least some of the topics of articles on the list.
3. Learn topic	Student has not explored the topic.	Student has done only one of the exercises assigned.	Student has done some, but not all of the exercises assigned.	Student has completed all the exercises assigned.	Student has gone beyond the exercises assigned to learn more.	Student has completed all assigned exercises and has a plan to continue learning in this topic.
4. Learn tool or language	Student has not explored the tool or language.	Student cannot use the tool or language.	Student can use the tool or language, but not effectively.	Student can use the tool or language effectively.	Student understands when and how this tool or language should be used instead of other tools or languages they already knew.	Student understands why and how the limitations of this tool or language exist.
5. Development Plan	Student does not have a development plan.	Student's development plan is very vague.	Development plan has a good list of skills, but not a good idea of how they will learn those skills.	Development plan is good in some areas and not very good in others.	Development plan is very good.	Development plan includes why the student believes learning these skills will be important.
I. 1. Use current tools	Student cannot or does not use the appropriate tools.	Tools are used ineffectively.	Tools are used inefficiently.	Tools are used effectively and efficiently, but not everywhere they should be used.	Tools are used well.	Student has developed ways to combine these tools which were not intended by the tool developers, but which are effective.
2. Discuss or report on advantages	Report describes the tool, but does not list any advantages.	Report lists only one or two advantages.	Report only lists the advantages. It does not justify them.	Report lists advantages and their justifications from the Help file of the tool or tutorial on the method.	Report provides some advantages based on the student's own experience and not from the Help or tutorial.	Report provides advantages based on comparisons with other tools or methods with overlapping purposes. These advantages are not just from the tool or method documentation.
3. Demonstrate	Student is unable to demonstrate the tool.	Some parts of the demonstration do not use the tool or method correctly.	The demonstration is not well-organized.	The demonstration is well-organized, but incomplete.	The demonstration is well-organized and covers the major aspects of the tool or method.	The demonstration is well-organized and provides insight into why the tool or method works as it does.
4. Group evaluation	This student did not contribute significantly to the evaluation.	The evaluation is incomplete and has significant errors.	The evaluation is correct, but incomplete.	The evaluation is correct, nearly complete, but not very well-organized.	The evaluation is well-organized, correct, and complete.	The evaluation provides insight on why the tool or method operates as it does and/or some implications of this operation.

J.	1. Compare solutions	The student is unable to produce more than one solution.	The student produces some incorrect solutions to the problem.	The student's solutions are correct, but there is little comparison.	The comparisons are asserted without justification.	The comparisons are justified.	The comparisons provide insight into the problem itself.
	2. Justify selection	Student does not make a selection.	Student makes a choice, but does not justify it.	The justification is incorrect.	The justification is correct, but misses significant aspects.	The justification is good.	The justification shows insight into the nature of the problem and/or the solutions.
	3. Critique design or solution	The student provides no critique.	The critique does not use tradeoffs correctly.	The critique does not use appropriate theory and analysis.	The critique uses appropriate theory and analysis, but incorrectly or incompletely.	The critique is accurate, complete, and uses appropriate theory and analysis correctly.	The critique justifies the use of the theory and/or analysis employed.
	4. Critique UML models	The student provides no critique.	The critique does not use theory.	The critique uses theory, but incorrectly or uses the wrong theory.	The critique uses proper theory correctly, but is incomplete.	The critique is accurate, complete, and uses proper theory.	The critique explains how the critique could be addressed to reduce or eliminate the problems with the diagram.
K.	1. Develop using principles	The student or team is unable to complete the application.	The student or team completes the application, but does not document the design and/or development.	The student or team completes the application and documents, but does not use principles everywhere.	The team or student uses principles incorrectly in some places.	The team or student uses principles appropriately throughout.	The team or student justifies exceptions to principles and explains how the principles benefited the development effort.
	2. Critique using principles	The student does not do a critique.	The critique is incorrect.	The critique is not based on appropriate principles.	The critique uses principles incorrectly in some places.	The principles are used appropriately throughout.	The student gives some insight into the value of using these principles.
	3. Critique source code from principles	The student does not do a critique.	The critique is incorrect.	The critique is correct, but not based on best principles.	The critique uses best principles incorrectly in some places.	The best principles are used appropriately throughout.	The critique explains how the code could be improved to better satisfy the best principles.
	4. Improve using principles	The student does not make any improvements.	The improvements are not correct.	The improvements are correct, but not based on best principles.	The best principles are used incorrectly in some places.	The best principles are used appropriately throughout.	The student explains how the best principles guided the improvements.