

**NUTR 372 Course Learning Impact Report (2004, 2005, 2006)**  
*Completed August 1, 2007, Catherine Arnold (Course Instructor)*

**Description:**

*Course Description:* NUTR 372 (2) Clinical Nutrition Assessment Lab. Supervised class experience to include assessment and screening techniques, medical record reviews, care plan development and documentation techniques. Part of the course is at an off-campus site; transportation is required. Credit or registration in: NUTR 371 (Therapeutic Nutrition). Fall and spring.

As part of the course, the student examines, develops care plans, and presents four case studies. Students first work with one other (partners are assigned - rotating, random) member of the class for cases one through three, and then case four is an individual assignment. Through the development of concept maps for each case study, students integrate biochemistry and pathophysiology into disease states. The flowcharts include pertinent etiology with risk and other lifestyle factors, laboratory values, signs/symptoms, and medications. **This is a critical course in the curriculum because of the interdisciplinary knowledge integration and higher order critical thinking skill development through case studies and other authentic experiences.**

To evaluate the impact of the course on student learning, multiple sources of information were examined:

- The entire curriculum was sent to four external evaluators for feedback in 2004.
- The IDEA Survey Evaluation tool provided student feedback about progress on objectives and critical thinking in 2004 and 2005.
- An instructor developed evaluation tool (Appendix A) to assess progress on individual course objectives, administered as a post-test in 2005 and pre-test/post-test in 2006 (student self-evaluation).
- Students at the end of the course completed a student self-evaluation of performance in open-ended problem solving skills (Appendix B, developed by Lynch, Wolcott, and Huber) in 2006.
- Direct evaluation of learning performance by instructor in 2006 (artifact: grades for case study; rubric in Appendix C; example student flow chart, Appendix D)

**Results:**

***External Review:***

NUTR-372 (Clinical Nutrition Assessment Lab) is the medical nutrition therapy “problem-solving” course for the Nutrition (DPD) program. For this course, there were no (and still are not) existing available laboratory books with assessment experiments we use that are targeted to develop these skills, so as the instructor I wrote my own manual. We have used the manual for several years. However, the performance rubrics for assessment were refined during the early 2000s. I revised the manual for use in spring 2004. To provide evidence of appropriateness as a course tool, I sent it along with other course materials to external reviewers in summer 2004. The results were positive. I update the manual as needed to accommodate a change in course textbook, as well as to provide additional cohesiveness, organization, and new content (e.g., Nutrition Care Process).

A request for volunteer reviewers was sent out on DEP-L, a dietetic educator list serve. Four dietetic educators agreed to review the materials, each of who taught a similar course. Most provided a narrative versus rating.

- *Comprehensiveness of syllabus* – 1 rating of 5.0 (of 5.0). Comments by reviewers: Very detailed and comprehensive. Well-organized. Well-designed sequencing. Clear.
- *Course cohesiveness* – 1 rating of 5.0 (of 5.0). Comments by reviewers\*: Course materials support course description and objectives. Course does an exceptional job of supporting the progression of skill and knowledge. These materials provide excellent guidelines to give students a starting point and procedure. The course is comprehensive including all topics generally included in such a course. I am impressed by the clarity and detail of the instructions and expectations. Opportunities are provided to “pull it all together”. Coverage of topics appears to be quite thorough. Assignments are meaningful and not only allow students to gain experience with a process of nutrition assessment but also foster and encourage the important critical thinking skills that are vital to good practitioners.
- *Student skill development* – 1 rating of 5.0 (of 5.0). Comments by reviewers: Case study laboratory exercises require students to apply their knowledge to real life situations and to develop and utilize professional judgment and decision-making skills. The most impressive feature of this course is the opportunity to develop critical thinking skills in dietetics. The assignments definitely appear to assist in the development of analysis, critical thinking and problem solving skills. This course is excellent in fostering client-orientated skill development. It is a credit to the course that experience in a “real” clinical setting is included.
- *Evaluation methods* – 2 ratings of 5.0 (of 5.0). Comments by reviewers: Rubrics for practical exams appear to be very complete and clear. Equitable.
- *Course strengths* (open-ended question) – Opportunity to go into a hospital and work with actual patients. Practical exam. Extensive case study completions and oral presentations. Opportunity to work with a pediatric patient. Experience in a clinical setting. Exceptional organization of materials and expectations.
- Additional Comments (open-ended question) – This course is obviously teaching/time intensive and I admire the time and energy you obviously put into this course to provide your students with excellent experiences at the undergraduate level. Nutrition Assessment is a fairly standard course at many universities including my own; however, you have taken this course to a new level including opportunities for students to master the material while developing critical thinking skills. This is an excellent course designed to help students develop strong patient care skills. Obviously much time, effort and thought has been put into the preparation of the assignments and materials provided. **Excellent course for developing practitioner skills for the emerging dietetic professional.**

*Comments were made by reviewer(s)* regarding limitations in content of interviewing skills, medical terminology, hyperalimentation, dietary recalls, subjective global assessment (SGA), and hematocrit measurement. Case study presentation evaluation methods broad, and missing some rubrics for Practical. Not sure why resume/letter of intent is in this course.

*Instructor (C. Arnold) response to limitations:* All components listed as limited are in fact covered in greater detail in other courses (thus more detail is not warranted in this course), except SGA and hematocrit physical measurement. The reviewers did not have a way to know this. SGA was added to physical assessment component of course for fall 2004. We will explore purchasing equipment in order to add hematocrit assessment (it was a good idea). A rubric was created for grading oral and written work associated with the case studies, and included in Lab Manual for fall 2004. Missing rubrics (taking a height and weight) were included in manual for the Practical. The suggestion to move the resume was taken; creation of a resume was moved to the new NUTR 391 portfolio course (a more natural fit) and letter of intent removed as a course requirement.

**IDEA Survey Course Results on Progress on Objectives:**

Seven of eight students completed the IDEA survey course evaluation ([www.idea.ksu.edu](http://www.idea.ksu.edu)) in fall 2004. This tool provided comparative information by contrasting the results with the IDEA database (Table 1). There is research to support the validity of this tool correlating student ratings with (moderate level correlation) administrator ratings, colleague ratings, and alumni ratings.

**Table 1: IDEA Progress on Objectives and Comparative Results for NUTR 372 (2004)**

Progress of relevant objectives:	Course Score (5 point Scale)		Comparison Group Average	IDEA Database Converted Average	
	Raw	Adj	IDEA	Raw	Adj
Learning to apply course material (to improve thinking, problem solving, and decisions)	4.9	4.5	4.0	67	59 Higher
Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course	4.9	4.5	4.0	66	58 Higher
Use resources to answer questions	4.4	4.1	3.7	62	56 Higher
Learning to analyze and critically evaluate ideas, arguments, and points of view	4.7	4.5	3.8	67	61 Higher

Much higher = Highest 10% of classes (above 63)  
Higher = Next 20% of classes (56-63)

Similar = Middle 40% (45-55)  
Lower = Next 20% (37-44)

Much lower = Lowest 10% (below 37)

In 2005, only three objectives were included in the evaluation. “How-to” use resources was not really a true learning objective of this course as no instruction is provided in this arena; the course does require it though. Thirteen of 14 students completed the IDEA survey course evaluation in fall 2005. Since this was our second year of use, this tool provided additional comparative information by contrasting the results with the IDEA database, disciplinary average, and the institution average (Table 2).

**Table 2: IDEA Progress on Objectives and Comparative Results for NUTR 372 (2005)**

Progress of relevant objectives	Course Score (5 point Scale)		Comparison Group Average			IDEA Database Converted Average		Discipline (IDEA data) Converted Average		Institution Converted Average	
	Raw	Adj	IDEA	Discipline	Institution	Raw	Adj	Raw	Adj	Raw	Adj
Learning to apply course material (to improve thinking, problem solving, and decisions)	4.9	4.5	4.0	4.1	4.1	68 Much Higher	60 Higher	68 Much Higher	60 Higher	65 Much Higher	60 Higher
Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course	4.9	4.5	4.0	4.1	4.1	67 Much Higher	58 Higher	67 Much Higher	58 Higher	65 Much Higher	59 Higher
Learning to analyze and critically evaluate ideas, arguments, and points of view	4.8	4.5	3.8	3.7	3.9	67 Much Higher	61 Higher	69 Much Higher	64 Much Higher	66 Much Higher	63 Higher

Much higher = Highest 10% of classes (63 or higher)  
Higher = Next 20% of classes (56-62)

Similar = Middle 40% (45-55)  
Lower = Next 20% (38-44)

Much lower = Lowest 10% (37 or lower)

Students reported they were able to apply course material, developed professional skills and competencies, and were able to analyze and evaluate. The results were *consistently high* for both years. All of the raw (and adjusted) scores for the objectives were well above 4.0/5.0, the initial course benchmark. The latter objective represents the **highest order of cognitive thought** (Bloom’s taxonomy). The mean score on “progress of relevant objectives” in 2005 for the course was 4.9/5.0, which ranked among the highest 10% of courses. The mean score for all relevant objectives exceeded all three comparison groups: those in the IDEA database, discipline database, and institution. Of the three objectives, the **critical thinking objective received the highest rating when comparative ratings are considered.**

***Progress of Course Objectives (pre/post survey):***

To supplement the IDEA survey tool in order to provide feedback on individual course objectives and skills, the course instructor developed and administered an evaluation tool (Appendix A) in fall 2005 and 2006. In 2006, this survey was administered twice - once at the start of the term and once in the last week of the term as a pre-test/post-test.

Students agreed that they could **demonstrate knowledge and skills in medical nutrition therapy.** There was no significant difference between the mean post-test scores for the same skill set for 2005 and 2006 (mean post-test ratings for 2005 and 2006 were 4.69/5.0 and 4.48/5.0, respectively),  $t=1.894(24), p > .05$ . The grand mean for the post-test scores was 4.58/5.0. (Table 3)

Using the same skill set, the five post-test abilities rated of greatest strength (descriptive statistics) for the years 2005 and 2006 collectively (N=26) were:

- Develop patient care plans (4.77/5.0)
- Assess nutrition history (4.77/5.0)
- Assess body composition measures (4.73/5.0)
- Assess clinical signs (4.73/5.0)
- Describe disease course using a flow chart (4.65/5.0)

**Table 3: Descriptive Statistics (2005 & 2006 together)**

Statements – I am currently able to:	N	Mean	Std. Deviation
Post- Describe components of assessment	26	4.3846	0.8521
Post- Describe components of documentation	26	4.4615	0.5084
Post- Assess clinical signs	26	4.7308	0.5335
Post- Assess laboratory parameters	26	4.6154	0.6373
Post- Assess medications	26	4.5769	0.6433
Post- Assess body composition measures	26	4.7308	0.4523
Post- Assess nutrition history	26	4.7692	0.4297
Post- Develop patient care plans	26	4.7692	0.4297
Post- Describe disease course using a flow chart	26	4.6538	0.4852
Post- Describe MNT rationale	26	4.6154	0.4961
Post- Document plan of care	26	4.1154	0.5883
Post- Current abilities (course objectives) mean	26	4.5839	0.3066

Scale: 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree

In 2006, assessing nutrition history (3.23/5.0) and describing components of assessment (3.08/5.0) were the highest pre-test means and the items with the least amount of gain, per results of the 2006 paired samples *t*-test. These latter two items represent probable *transfer of skills* from earlier courses (e.g., NUTR 241 and 280) in which the basics are discussed and some introductory case studies are developed. (Table 4)

Documenting a plan of care received one of the lower ratings among the skills in both 2005 and 2006, although the mean still was > 4.0/5.0 (4=agree). Because there were three (23%) “neutral” post-test ratings for this skill in 2005, the instructor **improved instruction** by placed a greater emphasis on documentation in 2006 as part of increasing the emphasis on the Nutrition Care Process and “standardized language.” Even though the overall descriptive mean was slightly lower in 2006 than in 2005 (but not statistically different/lower), the “Document plan of care” mean was higher than in 2005. All (100%) students in the 2006 course section reported that they “agreed” or “strongly agreed” this documentation skill was developed.

**Table 4: 2006 Descriptive Paired Samples Statistics**

	Statements – I am currently able to:	Mean	N	Std. Deviation
Pair 1	Pre- Describe components of assessment	3.0769	13	0.9541
	Post- Describe components of assessment	4.0769	13	1.0377
Pair 2	Pre- Describe components of documentation	2.6154	13	1.1209
	Post- Describe components of documentation	4.4615	13	0.5189
Pair 3	Pre- Assess clinical signs	2.6923	13	1.1821
	Post- Assess clinical signs	4.6154	13	0.6504
Pair 4	Pre- Assess laboratory parameters	2.0833	12	0.9962
	Post- Assess laboratory parameters	4.5833	12	0.6686
Pair 5	Pre- Assess medications	2.2308	13	0.8321
	Post- Assess medications	4.3846	13	0.7679
Pair 6	Pre- Assess body composition measures	2.8462	13	1.0682
	Post- Assess body composition measures	4.6923	13	0.4804
Pair 7	Pre- Assess nutrition history	3.2308	13	0.9268
	Post- Assess nutrition history	4.6154	13	0.5064
Pair 8	Pre- Develop patient care plans	2.6154	13	0.9608
	Post- Develop patient care plans	4.6154	13	0.5064
Pair 9	Pre- Describe disease course using a flow chart	2.0000	13	0.8165
	Post- Describe disease course using a flow chart	4.6923	13	0.4804
Pair 10	Pre- Describe MNT rationale	2.3077	13	0.9473
	Post- Describe MNT rationale	4.4615	13	0.5189
Pair 11	Pre- Document plan of care	2.5385	13	1.0500
	Post- Document plan of care	4.1538	13	0.3755
	Mean	4.4755	13	0.3425

Students **reported significant gains in medical nutrition therapy skills**. Using a paired samples *t*-test, it was found that students (N=13) made significant ( $p < .01$ ) progress on all individual course objectives in 2006, moving from a grand mean of 2.57 ( $\pm 0.71$ ) to a post-test grand mean of 4.58 ( $\pm 0.31$ ). The objectives showing the greatest gain were: describing disease course using a flow chart; assessing laboratory parameters; assessing medications; and describing the rationale for the therapeutic nutrition plan. These are specific to medical nutrition therapy, and require integration of knowledge from various nutrition and science courses for success, as well as the ability to problem-solve. (Table 5)

**Table 5: 2006 Paired Samples *t*-Test**

		Paired Differences		<i>t</i>	df	Sig. (2-tailed)
		Mean	Std. Deviation			
Pair 1	Pre- Describe components of assessment - Post- Describe components of assessment	-1.0000	1.0801	-3.338	12	.006
Pair 2	Pre- Describe components of documentation - Post- Describe components of documentation	-1.8462	1.2810	-5.196	12	.000
Pair 3	Pre- Assess clinical signs - Post- Assess clinical signs	-1.9231	1.1875	-5.839	12	.000
Pair 4	Pre- Assess laboratory parameters - Post- Assess laboratory parameters	-2.5000	0.9045	-9.574	11	.000
Pair 5	Pre- Assess medications - Post- Assess medications	-2.1538	1.1435	-6.791	12	.000
Pair 6	Pre- Assess body composition measures - Post- Assess body composition measures	-1.8462	0.9871	-6.743	12	.000
Pair 7	Pre- Assess nutrition history - Post- Assess nutrition history	-1.3846	0.8697	-5.740	12	.000
Pair 8	Pre- Develop patient care plans - Post- Develop patient care plans	-2.0000	1.0000	-7.211	12	.000
Pair 9	Pre- Describe disease course using a flow chart - Post- Describe disease course using a flow chart	-2.6923	.9473	-10.247	12	.000
Pair 10	Pre- Describe MNT rationale - Post- Describe MNT rationale	-2.1538	1.1435	-6.791	12	.000
Pair 11	Pre- Document plan of care - Post- Document plan of care	-1.6154	1.0439	-5.579	12	.000

***Problem Solving Abilities:***

**Students reported success in skills to solve open-ended problems.** Using a rubric (Appendix B) designed to self-evaluate problem-solving abilities, students ranked their skills in seven areas at the end of the NUTR 372 course. The rubric provided descriptions of five levels of each skill, but not a meaning for the rating that was obvious to the student. The skill with the highest rating was the overall approach to the problem (3.58/4.0). The overall mean for each skill was 3.23/4.0 (3= “Good”), which is appropriate for students completing a DPD program who have not yet completed a dietetic internship program (the students were told to compare themselves to a professional). All (100%) of the individual self-reported scores were > 2.0/4.0 (2 = “Satisfactory”), despite the fact that students were not told which choice would be rated as “Satisfactory.” (Table 6)

**Table 6: Descriptive Statistics of Problem Solving Abilities**

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Post- Problem-solving, Overall approach	12	1.00	3.00	4.00	3.5833	.5149
Post- Problem-solving, Use of relevant information	12	1.00	3.00	4.00	3.1667	.3892
Post- Problem-solving, Interpretation of information	12	2.00	2.00	4.00	3.1667	.7177
Post- Problem-solving, Use of organizing concepts	12	2.00	2.00	4.00	3.0833	.5149
Post- Problem-solving, Use of guidelines for judge across options	12	2.00	2.00	4.00	3.0833	.5149
Post- Problem-solving, Clarity of communication and appropriateness	12	2.00	2.00	4.00	3.2500	.6216
Post- Problem-solving, Acknowledging solution limitations	11	2.00	2.00	4.00	3.2727	.7862
Post_ Problem-solving skills mean	12	1.29	2.57	3.86	3.2282	.3871

Ratings: 4 = Excellent, 3 = Good, 2 = Satisfactory, 1 = Some skills; Needs significant improvement, 0 = None (not missing)

### ***Direct Evaluation of Learning Performance:***

Students successfully demonstrated problem-solving skills, as evidenced by the development of disease flow charts and care plans for authentic case study presentations. The instructor evaluated each case study presentation using a grading rubric (Appendix C). The rubric criteria were distributed to students via the Course Manual at the start of the course and again as an introduction to the cases. A high score on the disease “Flow Chart” (example in Appendix D) and related discussion (“Content 1” on rubric) **demonstrated interdisciplinary concept integration and high order problem solving.** A high score on the rubric for the “Nutrition and Education Plan” area of the care plan demonstrated thorough coverage of clinical signs and symptoms, physical adaptations (as appropriate for eating), education plans, and identification of a clear diet prescription. Generally, unless as student demonstrated the high order problem solving associated with the “Flow Chart”, the “Nutrition and Education Plan” was lacking. Mastery and scaffolding approaches were utilized by the instructor. The instructor served as a facilitator in the classroom and then met with pairs of students (individually for case #4) prior to presentations to ask students critical thinking questions about their cases. An advantage of using *authentic cases* (direct from local hospital each year) was that every presentation during every year has been different; problem-solving was the only route to the “answer” (most correct route/therapy) as it did not exist in the textbook or on previous year reports. Problem-solving in the medical arena requires high order thinking because there may be multiple possible solutions/therapies, with a “better” choice based on the information given. Other advantages of authentic case studies include learning of current medical information (e.g., medications, laboratory tests, medical tests and procedures appropriate for treating disease states) that are then presented in the medical history and/or disease flow charts to their peers. Because this was a time intensive course (outside of class) and collaborative in nature, class size is limited; it is designated as a “laboratory course.” In 2006, the overall grades on the case studies were > “B” (low grade of 81%) with the mean of an “A-” (93%) for the four case study presentations and care plans (not including the extra written report portion of case #4). The results of the direct learning performance are consistent with the student self-reports through the surveys.

### ***Overall Measure of Teaching Effectiveness:***

Students completed the IDEA survey course evaluation ([www.idea.ksu.edu](http://www.idea.ksu.edu)) in fall 2004 and 2005, which included questions relating to teaching effectiveness. This tool provided comparative information by contrasting the results with the IDEA database (Table 7). As a rule, students are highly motivated to take this course because of the authentic applications in medical nutrition therapy, despite the higher workload of the course. The adjusted scores reported teaching excellence to be similar to the middle 40% of those using the instrument. The instructor raw score average exceeded 4.0/5.0, the department benchmark, and increased from 2004 to 2005. In 2005, the raw score fell in the “higher 30%” of all teachers category for excellence.

**Table 7: Overall Excellence as a Teacher (NUTR 372)**

Year	N	Course Score (5 point Scale)		Comparison Group Average	IDEA Database Converted Average	
		Raw	Adj	IDEA	Raw	Adj
2004	7 (of 8)	4.3	4.0	4.2	52	47
2005	13 (of 14)	4.6	4.3		57	52

For 2007-2008, another full-time member of the faculty in the Nutrition Department was asked to teach this course by the DPD Director (also the current instructor) due to changes in teaching and administrative workload of the DPD Director. Due to the unique nature of the course, a transition plan is in place.

### **Course Learning Improvement Plans (2007-2009):**

To expand the experiences in the lab to include additional authentic measures of body composition and physical assessment (by/in 2008):

- Purchase fingerstick hematocrit testing equipment, and incorporate into lab exercise. [Develop rubric for performance assessment.]
- Purchase fingerstick higher quality cholesterol testing equipment, and incorporate into lab exercise. [Develop rubric for performance assessment.]
- Incorporate new full body bioelectrical feedback equipment (in exercise physiology lab) into adult assessment lab. [Develop rubric for performance assessment.]

Continue to provide experiences that facilitate learning current knowledge and problem solving skills in medical nutrition therapy (2007, ongoing):

- Continued use of authentic case studies (three of the four) through affiliation with Edward Hospital.
- Provide additional practice in documentation. Find or develop a practice tool for the students. [Refine assessment]
- Provide additional emphasis on Nutrition Care Process (to meet changing dietetic knowledge needs).
- Update *Course Manual* annually.

Laboratory Experience Resources Management:

- Purchase strong magnet clips for hanging flow charts from commercial overhead exhaust system - to enhance teaching environment. (2007)
- Instructor to maintain supply of flip chart paper for students to create flow charts.(2007; ongoing)
- Continue to purchase a plastic caliper to distribute to students (one per student) each year, to enable continued student practice of body composition measures following related lab; 1st year of distribution was 2006. (2007; ongoing)
- Maintain adequate supply of fingerstrip test strips and equipment in good working order (ongoing).
- Offer lab with greater frequency (each semester in 2007 and 2008)
- Consider purchase of inkjet overhead transparencies for student distribution. (2008)

### **Future Links to Program Plans:**

Continue to assess development of applied knowledge and problem-solving skills in students enrolled in NUTR 372 course through IDEA survey (each term of course) and other indirect and direct methods. As a supplemental (indirect) method for external evaluation, to enhance professionalism of individual case presentation, and to communicate value of work completed, consider use of an external audience (registered dietitians) for input about final presentations of students in 2008. Develop a two-year summary report in 2009 to submit to DPD director.

**Appendix A: Course Objective Self-Evaluation Form**

Post-test Cronbach alpha reliability (N=26) = .7624 (PCA revealed four components, not one)

**Course Objectives Self-Evaluation Form (2005)**

Name: \_\_\_\_\_

Directions: Please place a checkmark or "X" in the appropriate box. Mark one response for each statement that most closely represents your current abilities/skills.

**I am currently able to:**

	<b>Disagree Strongly</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
Describe the various components of nutrition assessment in clinical settings.					
Describe the various components of documentation in clinical settings.					
Assess individuals incorporating the following data to determine nutritional risk factors, nutritional needs, and status:					
• clinical signs					
• laboratory parameters					
• medications					
• body composition measurements					
• nutrition history					
Develop patient care plans					
Problem solve to outline the disease process					
Describe the disease course using a flow chart that details the pathophysiology and biochemistry of the patient.					
Connect side effects of medications to patient symptoms and lab values					
Describe the rationale for therapeutic nutrition care plan selection					
Uncover resources providing supporting information about pathophysiology and care plans					
Document plan of care (e.g., SOAP note)					

## Appendix B: Problem-Solving Rubric

Post-test Cronbach alpha reliability (N=11) = .7874 (one component)

Directions: One of the skills of a professional is self-regulation, which is sometimes referred to as "life-long learning." This form will help you evaluate your efforts in addressing an open-ended problem. You are not "grading" yourself.

- For each evaluation criterion below, circle the rating that best describes your performance on the final case assignment (#4).
- In the space provided, describe any progress or improvement in your performance over the semester.

### Phase 1: Identifying the Nature of an Open-Ended Problem and Relevant Information

<b>A. Overall Approach to the Problem</b>				
Circle best description of your performance:				
Proceeded as if goal was to find the single "correct" answer	Proceeded as if goal was to stack up evidence to support conclusion	Proceeded as if goal was to establish a detached, balanced view of evidence from different points of view	Proceeded as if goal was to come to a well-founded conclusion based on objective comparisons of viable alternatives	Proceeded as if goal was to construct knowledge, to move toward better conclusions or greater confidence in conclusions as the problem is addressed over time
Describe any progress or improvement over the semester:				
<b>B. Use of Relevant Information in Addressing the Problem</b>				
Circle best description of your performance:				
Used very limited information, primarily "facts" or definitions	Used limited information, primarily evidence supporting overall conclusion	Used a range of carefully evaluated, relevant information	Used a range of carefully evaluated, relevant information, including overarching criteria for judging among solutions	Used a range of carefully evaluated, relevant information, including overarching judgment criteria and viable strategies for addressing solution limitations
Describe any progress or improvement over the semester:				

Adapted and copied with permission from Lynch, C. L., Wolcott, S. K., & Huber, G. E. (2000, January). *Tutorial for optimizing and documenting open-ended problem solving skills* [On-line]. Available: [www2.apex.net/users/leehaven](http://www2.apex.net/users/leehaven). Permission is granted to use this form for noncommercial purposes.

**Phase 2: Framing an Open-Ended Problem**

<p><b>C. Interpretations of Information</b>                  Circle best description of your performance:</p>				
Presented information, but did not interpret it	Interpreted information as either supporting or not supporting different points of view	Qualitatively interpreted information from multiple points of view; included discussions of assumptions, alternative objectives, and evidence quality	Qualitatively evaluated information using general principles that allow for comparisons across points of view	As new information was generated over time, interpreted and re-interpreted information systematically
Describe any progress or improvement over the semester:				
<p><b>D. Use of Organizing Concepts for Information</b>                  Circle best description of your performance:</p>				
Organized information into categories of right, wrong, or uncertain	Responded to problem holistically; limited break down of problem; did not effectively address larger context	Organized information and concepts into a viable framework for exploring the realistic complexities of the problem	Organized information and concepts well; included generalized criteria that apply across different points of view and allow for qualitative comparisons of solution options	Organized information and concepts well, including generalized criteria; articulated that framework and criteria can be refined, leading to better solutions or greater confidence over time
Describe any progress or improvement over the semester:				

Adapted and copied with permission from Lynch, C. L., Wolcott, S. K., & Huber, G. E. (2000, January). *Tutorial for optimizing and documenting open-ended problem solving skills* [On-line]. Available: [www2.apex.net/users/leehaven](http://www2.apex.net/users/leehaven). Permission is granted to use this form for noncommercial purposes.

### Phase 3: Resolving an Open-Ended Problem

<b>E. Use of Guidelines or Principles to Judge Across the Various Options</b> Circle best description of your performance:				
Did not reason logically from evidence to conclusions; relied primarily on unexamined prior beliefs or clichés as justification	Provided little evaluation of alternatives; offered partially reasoned conclusions; reported superficially understood evidence in support of beliefs	Used evidence to reason logically within a given perspective, but criteria used do not necessarily apply across solution options	Used well-founded, overarching guidelines or principles to objectively compare and choose among alternative solutions; provided reasonable and substantive justification for assumptions and choices in light of other options	Argued convincingly using complex, coherent discussion of own perspective, including strengths and limitations; articulated how systematic processes of critical inquiry was used to build solution
Describe any progress or improvement over the semester:				
<b>F. Clarity of Written Communication and Appropriateness for Setting</b> Circle best description of your performance:				
Quality of written communication was poor or inconsistent; <sup>a</sup> did not address the information needs of the audience	Well written; <sup>a</sup> provided insufficient information for audience to understand alternative points of view	Well written; <sup>a</sup> provided sufficient information for audience to understand alternative points of view, but did not adequately prioritize information	Well written; <sup>a</sup> provided appropriate information prioritized for the setting and intended audience	Well written; <sup>a</sup> provided information appropriate for the setting and intended audience, including descriptions of processes for constructing valuable knowledge
Describe any progress or improvement over the semester:				

<sup>a</sup> *Well written* means consistently used correct spelling, good grammar, appropriate sentence and paragraph structure, proper referencing, and logical organization.

Adapted and copied with permission from Lynch, C. L., Wolcott, S. K., & Huber, G. E. (2000, January). *Tutorial for optimizing and documenting open-ended problem solving skills* [On-line]. Available: [www2.apex.net/users/leehaven](http://www2.apex.net/users/leehaven). Permission is granted to use this form for noncommercial purposes.

**Phase 4: Re-Addressing an Open-Ended Problem**

**G. Acknowledging Solution Limitations**

Circle best description of your performance:

Did not acknowledge significant limitations or uncertainties beyond lack of information or experts' lack of agreement on the correct solution	Identified at least one limitation or reason for significant, enduring uncertainty beyond lack of information or experts' lack of agreement on the correct solution	Described several limitations, weaknesses, or unknown aspects of the problem from different points of view	Adequately articulated significant limitations of conclusion when compared to other viable options	Suggested viable processes or strategies for monitoring results or otherwise addressing significant limitations over time
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Describe any progress or improvement over the semester:

Adapted and copied with permission from Lynch, C. L., Wolcott, S. K., & Huber, G. E. (2000, January). *Tutorial for optimizing and documenting open-ended problem solving skills* [On-line]. Available: [www2.apex.net/users/lechaven](http://www2.apex.net/users/lechaven). Permission is granted to use this form for noncommercial purposes.

## Appendix C: Case Study Rubric

### Case Study Care Plan Development and Presentation

#### Case Study Objectives:

1. Demonstrate ability to gather and interpret the information from a medical record, evidenced through accurate data entry and analysis of data for a care plan form and presentation.
2. Apply (through demonstration objectives 3-11) an integrated knowledge of:
  - a. pathophysiology
  - b. disease progression
  - c. socioeconomic characteristics
  - d. laboratory tests
  - e. medical tests
  - f. drug interactions
  - g. clinical signs
  - h. nutritional care
3. Demonstrate integrated application of above areas through a presentation, including the development of a comprehensive flow chart. The central components of the flow chart are the pathophysiology and disease progression, but other above areas, such as medical tests and lab results, should be integrated as applicable.
4. Demonstrate ability to use resources for interpretation of laboratory data and relevant drug-nutrient interactions.
5. Demonstrate ability to interpret and calculate nutritional needs. Be able to provide rationale for nutritional needs.
6. Demonstrate ability to identify potential learning needs, and recommend appropriate educational topics.
7. Demonstrate ability to write an integrated plan of care.
8. Demonstrate ability to locate, read, and synthesize a relevant professional journal article for presentation.
9. Demonstrate ability to develop a SOAP note.
10. Demonstrate ability to synthesize and condense above *pertinent* data for presentation.
11. Demonstrate ability to create relevant audiovisual aides (e.g., overhead transparencies) for delivery of presentations. Audiovisuals should assist the audience with "seeing" more abstract, complex, or detailed concepts, such as laboratory data, medication table with side effects, and a SOAP note.

A grading rubric is attached.

- This rubric delineates scoring (points) in each category/element of Care Plan Form and Presentation. "Meeting requirements with excellence" means meeting (or a student may elect to exceed) the criteria established to create a well-written plan. Satisfactory means acceptable, but not top level. There are 5 levels of point designation. Every vertical column of elements can be met with excellence as a criterion.
- Refer to the following scoring distribution for criteria (columns) used in performance assessment of care plans.

Clinical Nutrition Assessment Lab  
Care Plan Forms 1 & 3 and 5\*, Grade Score Sheet

Project Component	Point Allocation = %	Points Earned
Presentation - Content 1	4	
Presentation - Content 2	4	
Presentation Delivery	4	
Presentation - Accuracy	4	
Flow Chart - Content & Visual Aspects	4 x 2 = 8	
Audiovisual	4	
Audiovisual - Accuracy	4	
Care Plan Form - Medical Record Data	4 x 2 = 8	
Care Plan Form - Interpretation of Abnormal Laboratory Data	4	
Care Plan Form - Drug-Nutrient Side Effects	4	
Care Plan Form - Nutrient Needs Calculations	4	
Care Plan Form - Nutrient Status Calculations	4	
Care Plan Form - Energy Needs Distribution and Calculations	4	
Care Plan Form - SOAP Note	4 x 4 = 16	
Care Plan Form - Nutrition and Educational Plan	4 x 6 = 24	
<b>TOTAL</b>	<b>100 points</b>	

Care Plan Forms 2 & 5\*, Grade Score Sheet


Project Component	Point Allocation = %	Points Earned
Presentation - Content 1	4	
Presentation - Content 2	4	
Presentation Delivery	4	
Presentation - Accuracy	4	
Flow Chart - Content & Visual Aspects	4 x 3 = 12	
Audiovisual	4	
Audiovisual - Accuracy	4	
Care Plan Form - Medical Record Data	4 x 2 = 8	
Care Plan Form - Interpretation of Abnormal Laboratory Data	4	
Care Plan Form - Drug-Nutrient Side Effects	4	
Care Plan Form - Nutrient Needs Calculations	4	
Care Plan Form - Nutrient Status Calculations	4	
Care Plan Form - Energy Needs Distribution and Calculations	4	
Professional (Peer-Reviewed) Journal Article	4 x 3 = 12	
Care Plan Form - Nutrition and Educational Plan	4 x 6 = 24	
<b>TOTAL</b>	<b>100 points</b>	

\* Care Plan 5 can be (a) extra credit or (b) replace pediatric laboratory report. Note: must have a pediatric report for NUTR 391 portfolio course.

Care Plan Form 4, Grade Score Sheet

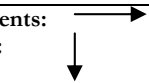
Project Component	Point Allocation = %	Points Earned
Presentation - Content (column 1)	4 x 2 = 8	
Presentation - Content (column 2)	4 x 2 = 8	
Presentation Delivery	4 x 2 = 8	
Presentation - Accuracy	4	
Flow Chart - Content & Visual Aspects	4 x 3 = 12	
Audiovisual	4	
Audiovisual - Accuracy	4	
Care Plan Form - Medical Record Data	4 x 2 = 8	
Care Plan Form - Interpretation of Abnormal Laboratory Data	4	
Care Plan Form - Drug-Nutrient Side Effects	4	
Care Plan Form - Nutrient Needs Calculations	4	
Care Plan Form - Nutrient Status Calculations	4	
Care Plan Form - Nutrient Needs Distribution and Calculations	4	
Care Plan Form - SOAP Note	4 x 4 = 16	
Care Plan Form - Nutrition and Educational Plan	4 x 6 = 24	
Professional (Peer-Reviewed) Journal Article	4 x 2 = 8	
Comprehensive Report	4 x 6 = 24	
Reference List	2	
<b>TOTAL</b>	<b>150 points</b>	

Note there is not a specific column for “reference list” for case 4. References must adhere to the *J Am Diet Assoc/JAMA* format.

Elements: Scale: 	Presentation Content (1)	Presentation Content (2)	Presentation Delivery	Presentation Accuracy
<b>4</b> <b>Exceeds Requirements OR Exceptional</b>	Thorough description of: <ul style="list-style-type: none"> <li>• pathophysiology</li> <li>• disease progression</li> <li>• relevant socioeconomic characteristics</li> <li>• laboratory tests</li> <li>• medical tests</li> <li>• drug interactions</li> <li>• clinical signs</li> </ul>	Thorough description of: <ul style="list-style-type: none"> <li>• analysis of nutrition intake, (if diet history taken)</li> <li>• nutrition status calculation rationale</li> <li>• nutrition needs calculation rationale</li> <li>• nutritional care recommendations</li> <li>• possible nutrition education needs</li> <li>• priority nutrition education recommendations</li> </ul>	<ul style="list-style-type: none"> <li>• Articulate</li> <li>• Organized</li> <li>• Logical in flow</li> <li>• Appear practiced</li> <li>• Appear prepared</li> <li>• Professional in appearance, manner, and demeanor</li> <li>• Professional in choice of words/terms</li> <li>• Completed in time (<math>\pm 5</math> minutes)</li> </ul>	No or 1 minor error of interpretation or calculation.  <u>AND</u> All information presented is current.
<b>3</b> <b>Meets Requirements OR Standard</b>	Includes thorough description of pathophysiology, BUT omission of 1 other category listed above. <u>OR</u> Discussion includes small amount of irrelevant information.	Includes thorough description of nutritional status and needs, BUT Omission of 1 other category listed above. <u>OR</u> Discussion includes small amount of irrelevant information.	Deficiency of 1 item listed in above categories	All information presented is current, <u>BUT</u> 2 minor errors of interpretation or calculation.
<b>2</b> <b>Below Minimal Standards; Needs More Work</b>	Omission of 2 categories listed in level 4 above. <u>OR</u> Omission of 1 category and some irrelevant information.	Omission of 2 categories listed in level 4 above. <u>OR</u> Omission of 1 category and some irrelevant information.	Deficiencies of 2 items listed in level 4 category. <u>OR</u> Time allotment is deficient by 8 or more minutes <u>OR</u> Primarily reads off notes for pathophysiology	All information presented is current, <u>BUT</u> 3 minor or 1 major errors of interpretation or calculation <u>OR</u> A small amount of information presented is not current AND 2 minor errors.
<b>1</b> <b>Does Not Meet Standards; Needs Substantial Revisions</b>	Omission of 3 categories listed in level 4 above. <u>OR</u> Omission of 2 categories and some irrelevant information.	Omission of 3 categories listed in level 4 above. <u>OR</u> Omission of 2 categories and some irrelevant information.	Deficiencies in 3 items listed in level 4 category, and/or from the following list: <ul style="list-style-type: none"> <li>• Inarticulate</li> <li>• Disorganized</li> <li>• Illogical flow</li> <li>• Appears unprepared</li> <li>• Reads off notes</li> <li>• Unprofessional in manner, appearance, word choice</li> </ul>	All information presented is current, <u>BUT</u> 4-5 minor or 2 major errors of interpretation or calculation <u>OR</u> A small amount of information presented is not current AND 3 minor errors. <u>OR</u> a large body of information presented that is not current
<b>0</b> <b>Absent</b>	Omission of >3 categories listed above. <u>OR</u> Omission of 3 categories and some irrelevant information. <u>OR</u> No presentation	Omission of >3 categories listed above. <u>OR</u> Omission of 3 categories and some irrelevant information. <u>OR</u> No presentation	Deficiencies in >3 of level 4 categories and/or demonstrated poor presentation techniques listed in level 1. <u>OR</u> No presentation	>5 minor or >2 major errors of interpretation. <u>OR</u> nearly all of information presented is not current. <u>OR</u> No presentation

Elements: Scale: →	Flow Chart	Audiovisual	Accuracy of Audiovisuals	Care Plan Form - Medical Record Data
4 ↓ <b>Exceeds Requirements OR Exceptional</b>	Flow chart illustrates pathophysiology of disease progression, integrating medical tests, lab results, and nutritional problems, as relevant. <u>AND</u> Flow chart is organized, placing boxes or circles around concepts and connecting arrows. Color is used to highlight or separate concepts. Neat. <u>AND</u> 0-1 errors allowed.	Visuals are utilized as a tool to support presentation of complex concepts. <u>AND</u> Visuals are professional in appearance <u>AND</u> Visuals incorporate principles of visual literacy (refer to <i>Instructional Media</i> text book)	No errors of interpretation or calculation  And  All information presented is current	Records data from the medical record accurately and legibly onto the Care Plan Form. Includes record of medical history (diagnoses, signs, symptoms), socioeconomic history, medications (name, dosage, frequency), laboratory values (data, lab name, actual value, normal reference value), sex, age, height, weight, allergies, diet prescription, and diet history as appropriate. Neat. Printed.
3 <b>Meets Requirements OR Standard</b>	2 Errors in flow (e.g., arrow incorrect or missing, slightly disorganized) <u>OR</u> 2 minor (e.g., lab or medical test) or 1 major (e.g., pathophysiology) content item missing from chart. <u>OR</u> 2 combined errors (1 from each of above)	Visuals utilized in presentation <u>AND</u> Visuals are professional in appearance	1-2 minor errors of interpretation or calculation  And  All information presented is current	All data recorded but not neat in appearance, or not printed.
2 <b>Below Minimal Standards; Needs More Work</b>	3-4 Errors in flow <u>OR</u> 3-4 minor or 2 major content item missing from chart. <u>OR</u> 3-4 combined errors.	Visuals used in presentation <u>AND</u> Visuals are professional in appearance <u>BUT</u> visuals contain some irrelevant information	3 errors of interpretation or calculation  And/or  Some information presented is not current	Missing medication dosage or frequency or laboratory dates or normal reference values.
1 <b>Does Not Meet Standards; Needs Substantial Revisions</b>	5-6 Errors in flow <u>OR</u> 5-6 minor or 3 major content item missing from chart. <u>OR</u> 5-6 combined errors.	Visuals used in presentation <u>BUT</u> 2 of the following are true: (a) visuals are inappropriately utilized, (b) contain irrelevant information, (c) are unprofessional in appearance, and/or (d) there are too many visuals used	More than 3 errors of interpretation or calculation  And/or  Some information presented is not current	Missing 1 category of items listed in level 4.
0 <b>Absent</b>	>6 flow errors <u>OR</u> >6 minor or > 3 major content items missing <u>OR</u> > 6 combined errors <u>OR</u> No presentation <u>OR</u> No flow chart	No visuals utilized		Missing more than 1 category of items listed in level 4. (because too much information missing for thorough evaluation)

Elements: Scale: →	Care Plan Form - Interpretation of Laboratory Data	Care Plan Form - Drug-Nutrient Side Effects	Care Plan Form - Nutrient Needs Calculations	Care Plan Form - Nutrient Status Calculations
4 ↓ Exceeds Requirements OR Exceptional	For all laboratory values below or above normal range, list potential relevant reasons for abnormal values.	For all medications, list potential relevant drug-nutrient side effects.	Calculations completed for kcalories, protein, and fluid needs. Mathematically correct. All work shown. Appropriate use of stress and activity factors. If patient obese, ABW utilized in formulas.	Calculation of IBW, %IBW, and BMI mathematically accurate. ABW computed if obese.
3 Meets Requirements OR Standard	Missing some relevant reasons for 1-2 abnormal laboratory values.	Lacking some relevant side effects for 1-2 medications listed.	1 minor mathematical error resulting in less than 2.5% error in outcome.	1 minor mathematical error resulting in less than 2.5% error in outcome.
2 Below Minimal Standards; Needs More Work	Missing all reasons for abnormal values for 1 lab <u>OR</u> Missing some relevant reasons for 3-4 abnormal laboratory values.	Missing all side effects for 1 medication. <u>OR</u> Lacking some relevant side effects for 3-4 medications listed.	1 minor mathematical error resulting in 2.6-5.0% error in outcome.	1 minor mathematical error resulting in 2.6-5.0% error in outcome.
1 Does Not Meet Standards; Needs Substantial Revisions	Missing all reasons for abnormal values for 2 labs <u>OR</u> Missing some relevant reasons for 5-6 abnormal laboratory values.	Missing all side effects for 2 medications. <u>OR</u> Lacking some relevant side effects for 5-6 medications listed.	Did not use ABW in formulas if appropriate. <u>OR</u> 1-2 mathematical errors resulting in combined 5.1-10.0% error in outcome	Missing 1 needed computation. <u>OR</u> 1-2 mathematical errors resulting in combined 5.1-10.0% error in outcome
0 Absent	Missing all reasons for abnormal values for >2 labs <u>OR</u> Missing some relevant reasons >6 abnormal laboratory values.	Missing all side effects for >2 medications. <u>OR</u> Lacking some relevant side effects for >6 medications listed.	No work shown for calculations. <u>OR</u> Combined mathematical errors >10.0% error in outcome.	Missing computations. <u>OR</u> Combined mathematical errors >10.0% error in outcome.

Elements: Scale: 	Care Plan Form - Energy Needs Distribution/Calculations	Care Plan Form - SOAP Note	Care Plan Form - Nutrition and Educational Plan	Professional Journal Article Presentation
<b>4</b> <b>Exceeds</b> <b>Requirements OR</b> <b>Exceptional</b>	Calculations completed for protein, carbohydrate, and fat. Percent distribution of calories across nutrient groups appropriate for disease state(s). Protein (g) in distribution matches protein needs ( $\pm 1$ g). Mathematically correct.	Format organized and correctly written in black ink. <u>AND</u> Each section note contains accurate and pertinent information. No irrelevant information. "A" includes assessment of nutrient needs, appropriateness of diet prescription, education needs, potential readiness to learn, and other pertinent information. "P" outlines specific plan. 2 errors of irrelevancy allowed.	All disease states represented. <u>AND</u> supporting data for each disease state listed. <u>AND</u> outcome measures listed for all clinical and functional issues. <u>AND</u> educational outline (list of topics) provided for each disease state. <u>AND</u> diet prescription specifically listed as outcome of educational plans.	Relevant (to the case) article (not abstract) from a peer-reviewed journal. <u>AND</u> Copy provided to instructor and each student prior to presentation. <u>AND</u> Explained article and relevance to case, in terms of pathology and/or MNT.
<b>3</b> <b>Meets</b> <b>Requirements OR</b> <b>Standard</b>	1 minor mathematical error resulting in less than 2.5% error in outcome.	3-4 combined errors of: (a) irrelevant labs or (b) irrelevant medications listed or (c) missing values for relevant labs.	[3.5 score - Level 4 except diet prescription missing]  25% of relevant clinical and/or functional data OR 25% of educational plans missing (diet rx = 12.5%)	Relevant (to the case) article (not abstract) from a peer-reviewed journal. <u>AND</u> Copy provided to instructor and each student prior to presentation. <u>AND</u> Explained article, but did not make relevance to case clear.
<b>2</b> <b>Below</b> <b>Minimal Standards;</b> <b>Needs More Work</b>	1 minor mathematical error resulting in 2.6-5.0% error in outcome.	5-6 combined errors of: irrelevancy or missing info in "S", "O", or "P" <u>OR</u> missing appropriate nutrient or diet order calculations or interpretations <u>OR</u> recommended diet prescription missing	26-50% of combined relevant clinical and/or functional data and/or educational plans missing (diet rx = 12.5%) <u>OR</u> Missing 1 disease state	Relevant (to the case) abstract (not article) from a peer-reviewed journal. <u>AND</u> Copy provided to instructor and each student prior to presentation. <u>AND</u> Explained abstract and relevance to case, in terms of pathology and/or MNT.
<b>1</b> <b>Does Not Meet</b> <b>Standards; Needs</b> <b>Substantial</b> <b>Revisions</b>	% calories for nutrients not converted to grams (g). <u>OR</u> 1-2 mathematical errors resulting in combined 5.1-10.0% error in outcome <u>OR</u> Protein (g) in distribution does not match protein needs ( $\pm 1$ g).	7-8 combined errors of irrelevancy or omission. <u>OR</u> Missing one section (of "O", "A", or "P").	51-75% of combined relevant clinical &/or functional data &/or educational plans missing (diet rx = 12.5%) <u>OR</u> Missing 2 disease states <u>OR</u> Missing 1 disease state and 1/3 of relevant clinical &/or functional data &/or education plans missing (diet rx = 12.5%).	Relevant article or abstract is not from a peer-reviewed journal. <u>AND</u> Copy provided to instructor and each student prior to presentation. <u>AND</u> Explained relevance to case, in terms of pathology and/or MNT.
<b>0</b> <b>Absent</b>	% calories for nutrients not converted to grams (g) <u>AND</u> 1-2 mathematical errors resulting in combined 5.1-10.0% error in outcome <u>OR</u> Combined mathematical errors >10.0% error in outcome.	>8 combined errors of irrelevancy or omission. <u>OR</u> Missing two sections (of "O", "A", or "P"). <u>OR</u> No SOAP note included when required.	Missing completely <u>OR</u> Missing > 2 disease states <u>OR</u> >75% of combined relevant data missing <u>OR</u> missing 2 disease states and 1/3 of relevant clinical &/or functional data &/or education plans missing (diet rx = 12.5%).	No article or abstract provided, or not relevant to the case.

Elements: Scale: → ↓	Comprehensive Report – Pathophysiology (8 points)	Comprehensive Report – MNT Rationale (4 points)	Comprehensive Report – Nutrient Analysis (4 points)	Comprehensive Report – Education Plan (8 points)
<b>4 Exceeds Requirements OR Exceptional</b>	Thorough, relevant and accurate written description (with referencing) of: <ul style="list-style-type: none"> <li>• pathophysiology</li> <li>• etiology</li> <li>• disease progression</li> <li>• clinical signs &amp; symptoms, with relation to disease</li> <li>• relationships of diseases</li> <li>• role of nutrition in disease state(s)</li> <li>• relation of patient symptoms to nutritional status</li> </ul>	Thorough, relevant and accurate written description of: <ul style="list-style-type: none"> <li>• diet prescription recommended (compared to diet order)</li> <li>• rationale and indications for each aspect of diet prescription (provide physiologic &amp; biochemical basis – referencing as appropriate)</li> <li>• food restrictions and nutritional considerations specific to the patient.</li> </ul>	Based on diet history of patient, thoroughly analyze dietary recall, providing written explanation of recall: <ul style="list-style-type: none"> <li>• against the Food Guide Pyramid (FGP)</li> <li>• Against the Dietary Guidelines (DG)</li> <li>• In terms of nutrient density</li> </ul> And include at least 7 specific recommendations for change of his/her dietary intake/habits in the Care Plan. (Optional: computer analysis by computer)	Develop and write a comprehensive relevant nutrition education plan. In discussion incl: <ul style="list-style-type: none"> <li>• Specific short-term goals</li> <li>• Long-term goals</li> <li>• Obstacles that may interfere with compliance</li> <li>• Name and describe each instructional material and methods you would use</li> <li>• Explain by example how you will evaluate patient's understanding</li> <li>• Perceived level of motivation and anticipated reaction of patient and significant others to education plan</li> </ul>
<b>3 Meets Requirements OR Standard</b>	Includes thorough description of pathophysiology, BUT omission of 1 other category listed above. <u>OR</u> Discussion includes small amount of irrelevant information.	Includes thorough description of rationale, but food restrictions not discussed.	Missing discussion of nutrient density <u>OR</u> only 6 specific recommendations. <u>OR</u> discussion about DG missing some specificity (2-3 omissions of detail/examples)	Includes thorough description of short-term goals BUT Omission of 1 other category listed above. <u>OR</u> Discussion includes small amount of irrelevant information.
<b>2 Below Minimal Standards; Needs More Work</b>	Omission of 2 categories listed in level 4 above. <u>OR</u> Omission of 1 category and some irrelevant information.	Rationale lacking about 50% of detail needed.	Missing discussion of FGP or DG. <u>OR</u> only 5 specific recommendations <u>OR</u> lacking specificity for 4-5 components	Omission of 2-3 categories listed in level 4 above. <u>OR</u> Omission of 1-2 categories and some irrelevant information.
<b>1 Does Not Meet Standards; Needs Substantial Revisions</b>	Omission of 3 categories listed in level 4 above. <u>OR</u> Omission of 2 categories and some irrelevant information.	Rationale lacking about 51-75% of needed detail. <u>OR</u> Diet prescription missing.	Missing recommendations <u>OR</u> missing 2 of 3: FGP, DG, nutrient density <u>OR</u> 6-7 errors of omission/lacking specificity	Omission of 4-5 categories listed in level 4 above. <u>OR</u> Omission of 3-4 categories and some irrelevant information.
<b>0 Absent</b>	Omission of >3 categories listed above. <u>OR</u> Omission of 3 categories and some irrelevant information. <u>OR</u> No written report	Rationale lacking >75% of needed detail. <u>OR</u> No written report.	Missing recommendations <u>OR</u> comparisons <u>OR</u> >7 errors of omission/lacking specificity <u>OR</u> No written report	<u>OR</u> Omission of >4 categories and some irrelevant information. <u>OR</u> No written report

# Appendix D: Example Student Flow Chart

