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ARIZONA  
UNIVERSITY



# **Office of Academic Assessment**

**Assessment for improving  
student learning**

Study on UCC and UGC Proposal Justifications with  
Assessment Findings, 2005-2007

**Zhong Chen, Ph.D.**

Research Specialist, Sr.  
Office of Academic Assessment  
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## Executive Summary

At Northern Arizona University, academic units are required to submit proposals for program or course changes, additions, or deletions to one of two faculty bodies: either the the University Curriculum Committee (UCC) or the University Graduate Committee (UGC) This study aimed to compile and aggregate proposals submitted during AY 05-06 and 06-07 to determine how and to what extent degree-program assessment findings of student learning were used to justify proposed changes. Findings in this report will serve as benchmarks for similar analyses in the future.

Totally, 766 proposals were investigated, which covered 196 plans/subplans, and 570 courses. Among them 659 and 107 are undergraduate and graduate courses/plans respectively. Approximately 64% of the proposals requested for changes, 25% of them for new courses, and 11% for course, plan/subplan deletions (Table 1).

Based on the rubric established by the Office of Academic Assessment for categorizing the relative strength of assessment justifications, 95 out of 766 proposals had substantial evidence of using assessment findings to justify program changes. Further, 183 out of 766 proposals revealed some evidence of using assessment findings to justify the actions proposed (e.g. change, deletion, and new). However, 488 out of 766 proposals did not include any assessment findings in their justifications (Table 1).

The maximum likelihood analysis of variance with PROC CATMOD shows that the magnitude of using assessments (e.g. strong, weak, and no) significantly differ among the actions proposed (e.g. change, deletion, and new) but were marginally significant between undergraduate and graduate programs. The proposals for new courses, plans/subplans tend to have the highest probability of including assessments strongly in justifications (Figure 1). The graduate proposals overall had a slightly greater estimated probability of incorporating assessment findings into justifications definitely than the undergraduate proposals (Figure 1).

An additional purpose here was to determine if any significant difference existed between the assessment justifications found within the new proposal format vs. the old format. The newer format includes the question, “ ADD QUESTION “ while the old proposal form does not. Has the use of assessment justification increased substantially since the new form was introduced? Based on the analysis herein, the answer is yes. Proposals using the new form were significantly more likely to include strong or weak assessment justifications, as compared to the old form. This is evidenced by the fact that no single “strong” assessment finding in proposal justifications existed in proposals based on the old format in which the element of assessment was not required (Table 2). However, once again the overall percentage of proposals including assessment findings in justifications is still quite low. This is perhaps due to a combination of factors: for instance, perhaps the requested assessments were not deemed as applicable for the proposals, or simply the assessment results were not yet available from degree-program assessment efforts. Further, it is possible that members of the UCC and UGC will consider placing a greater

emphasis on this assessment-related proposal justification as the process becomes more familiar to their own committees and to the NAU faculty.

As an important application of assessment findings in proposal justifications, this study reveals how assessment findings could be used for proposal justifications and eventually for program and curriculum modifications as well. It is expected that this kind of aggregate study on UCC and UGC proposal justifications with assessment findings will be repeated in the future. At the same time, more work should be considered on how to classify the magnitude of using assessment findings in a clearer and more accurate way based on a commonly accepted rubric.

## Study on UCC and UGC Proposal Justifications with Assessment Findings

### 1. Introduction

The basic cycle of assessing student learning includes the formulation of student-learning outcomes (SLOs), the metrics or indicators used to assess those outcomes, feedback of assessment findings to relevant audiences (such as faculty and students), and the use of assessment findings to showcase learning successes and to adjust curricula as necessary. The latter component of this assessment cycle – uses of the findings – is arguably the most important one in the realm of student-learning assessment. The collection of assessment data is worthless unless it is put to good use. Further, institutions of higher education are now strongly urged by their accrediting agencies to publicize how assessment findings are being used.

Consequently, this study seeks to capture data on one important university arena in which assessment data is variously being used at Northern Arizona University – that is, the application of degree-program assessment findings to justify program and course changes. Proposals for such changes are required, and are submitted for regular review by either the University Curriculum Committee (UCC) or the University Graduate Committee (UGC). In 2005, one question on the Proposal for Course Change was altered to read, “**Justification for course change. Please indicate how past assessments of student learning prompted proposed changes.**” This allows for a content analysis of all proposed course justifications (i.e. answers to this question) and to compare them with justifications on earlier forms that did not mention assessment.

NAU has been committed to academic assessment of student learning since the late 1990s. A recent Assessment Audit report for AY 06-07 showed that 85% of the degree programs (125 out of 147) have assessment plans on file with the Office of Academic Assessment (OAA), and 76% of degree programs (112 out of 147) submitted at least one report to the OAA since 2004. Moreover, 50% of reports (56 out of 112) revealed assessment findings. Though representing excellent progress in degree-program assessment at NAU, documented uses of assessment findings still remain weak. In part to encourage and document the uses of assessment data at the degree-program level, the Propsoal for Course Change (and more recently the Proposal for Course and Proposal for New Plan/Plan Change), was amended in September, 2005 to require a justification based on assessment findings.

The purpose of this study is therefore to investigate proposals submitted in AY05-06 and 06-07 with an emphasis on how and to what extent assessments of student learning are used to justify the actions proposed. That is, this study will address at least one of three major challenges for future assessment efforts at NAU proposed by Dr. Karen Pugliesi (Vice Provost for Undergraduate Studies at NAU, UAC Retreat meeting minutes, August 24, 2006): “In what ways are the results of assessment being used for improvement?”

Two major research goals are addressed in this study: (1) Identify and classify the type and strength of assessment findings used to justify course or program changes up through spring, 2007; (2) Compare the frequency and strength of assessment justifications before and after the assessment question was added to the proposal forms in September, 2005. Being the first study of its kind at NAU, results herein will serve as benchmarks for future comparisons of assessment justifications on proposals forms.

## 2. Materials and methods

### 2.1. Data source

Proposals submitted to the UCC or UGC during AY 05-06, and AY 06-07 are analyzed here. Their electronic materials are available publicly online in either word or pdf format. from the following website <http://jan.ucc.nau.edu/academicadmin/UCCForms.htm> , whereas the electronic materials of graduate proposals submitted to the University Graduate Committee (UGC) in AY 06-07 are available at <http://www.nau.edu/gradcol/meetingmaterials.htm> . It should be pointed out that since no electronic materials for graduate proposals in AY05-06 are available online, no attempt was made to analyze hardcopy files in the Graduate College. Totally, 766 proposals are investigated in this study, which covered 196 plans/subplans and 570 courses. Among them 659 and 107 belong to undergraduate and graduate degree programs, respectively.

### 2.2. Database establishment

Each proposal available online was analyzed thoroughly with a focus on the justification question. Then, the following items were included in an Access database:

- 1) Number of records
- 2) Effective semester
- 3) Effective year
- 4) College
- 5) Academic units
- 6) Degree (UG or G)
- 7) Course abbreviation (e.g. ACC 205)
- 8) Course name (e.g. LEGAL, ETHICAL, GLOBAL, AND REGULATORY ENVIRONMENT OF BUSINESS for ACC 205)
- 9) Plan name (e.g. Minor in Statistics)
- 10) Action (e.g. proposed for change, deletion, new)
- 11) Justification (why such action proposed)
- 12) Short description (e.g. abstract from some long justifications)
- 13) Change form used (e.g. which form used in proposal, revised September 2005 (new) or 2004 (old))
- 14) Assessment (e.g. how the assessment results were used in justification)

### 2.3. Rubric matrix for classifying the magnitude of using assessment findings

Based on the key words and phrases in justifications provided in these proposals, a rubric matrix was established and used to classify the magnitude of how the assessment findings are incorporated into the justifications (Appendix 1). Three categories of magnitude in using assessment findings are classified: “Strong”, “Weak”, and “No”. It should also be pointed out that unlike proposals for changes, proposals for course and plan/subplan deletion, and for new courses, new plans/subplans were not required by the UCC and UGC to indicate how the assessment findings prompted actions proposed in justifications (several of these forms have since added this requirement); however, some proposals not

requiring assessments still include them, anyway. Therefore, the magnitude of using assessment findings will be classified for all three types of actions proposed (e.g. change, deletion, and new), although the action of proposed changes is of most interest.

#### *2.4. Statistical analysis*

The basic statistics of this study include the frequency distribution of actions (e.g. change, deletion, and new) proposed, and the magnitude of using assessments in justification (e.g. strong, weak, and no) for both undergraduate and graduate programs. The estimated probabilities of “strong”, “weak” and “no” in assessments for a given action and degree program are determined by using the maximum likelihood analysis with PROC CATMOD in SAS. Finally, the effect of format used for proposals (old versus new) on the appearance and magnitude of assessment findings in undergraduate proposals is determined with Chi-Square test in SAS.

### **3. Results**

#### *3.1. Distribution of actions and the magnitude of using assessments in justifications*

The undergraduate proposals submitted to the UCC in AY 05-06 and AY 06-07 include 659 courses, plans, and subplans, among which 432 (or 65.5%) are proposed for changes, 76 (or 11.5%) for deletions, and 151 (or 22.9%) for new. In contrast, the graduate proposals submitted to the UGC in AY 06-07 include 107 courses, plans, and subplans, among which 58 (or 54.2%) are proposed for changes, 7 (or 6.5%) for deletions, and 42 (or 39.3%) for new. In other words, approximately 64% of all the undergraduate and graduate proposals submitted to UCC and UGC between AY 05-06 and AY 06-07 were requesting course changes, and plan or subplan changes. Further, approximately 11% of the proposals were requesting course deletions, plans or subplans; whereas approximately 25% were creating new courses, plans or subplans (Table 1).

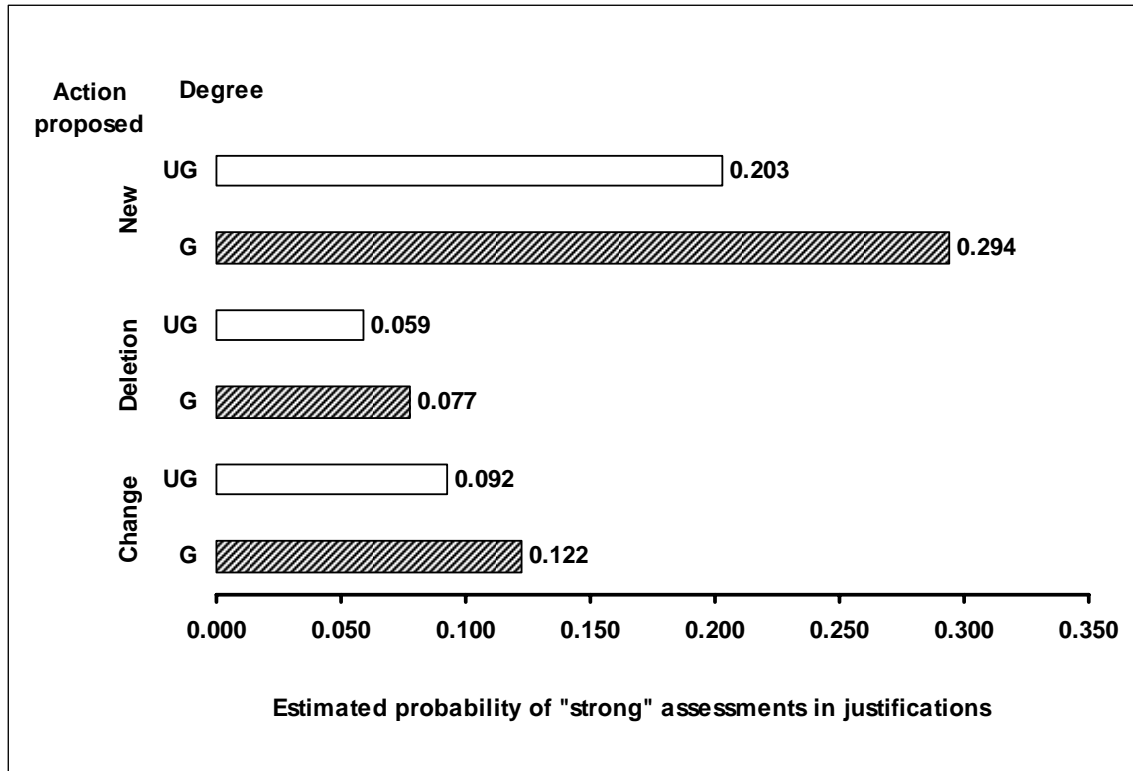
Based on the rubric (Appendix 1), overall 488 out of 766 proposals did not include assessment findings in their justifications; whereas 278 out of 766 proposals more or less included assessment findings in justifications (Table 1). A total of 95 (or 12.4%) proposals included substantial evidence from assessments of student learning (e.g. feedback from the committee, faculty, and students; requirements of accreditation agency) to justify the course and plan/subplan changes, deletions, and new courses plans/subplans (Table 1).

**Table 1.** The distribution of actions proposed and the justification with assessments of student learning for undergraduate and graduate courses, plans or subplans

Degrees	Actions Proposed	Justifications with Assessments of Student Learning and others			Total
		Strong	Weak	No	
Undergraduate (AY 05-06, and AY 06-07) (n=659)	Change	33	84	315	432
	Deletion	5	12	59	76
	New	37	67	47	151
Graduate (AY 06-07) (n=107)	Change	14	6	38	58
	Deletion	0	1	6	7
	New	6	13	23	42
Total		95	183	488	

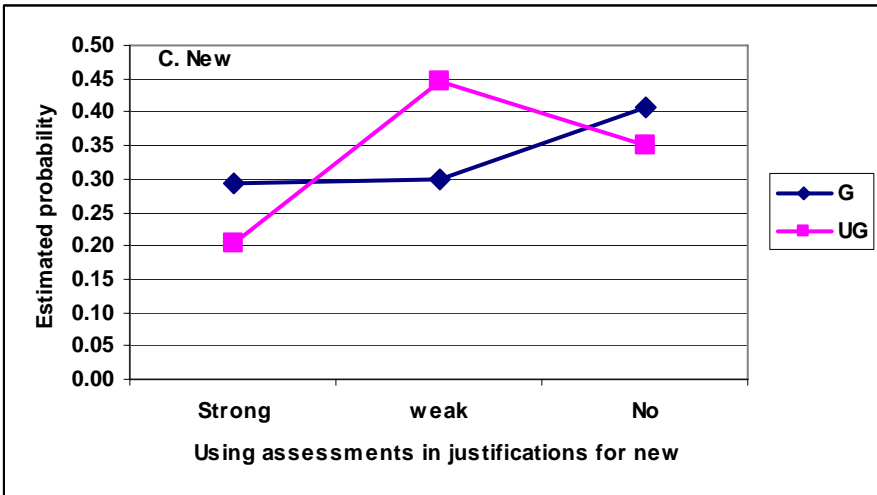
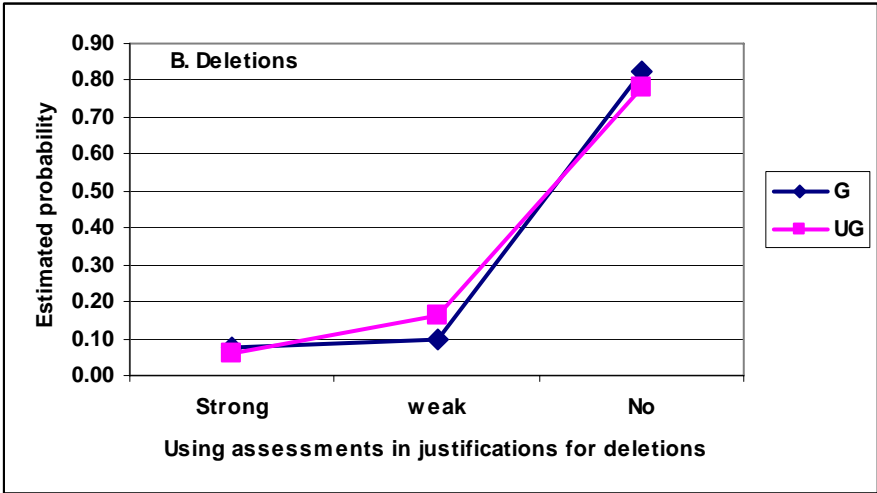
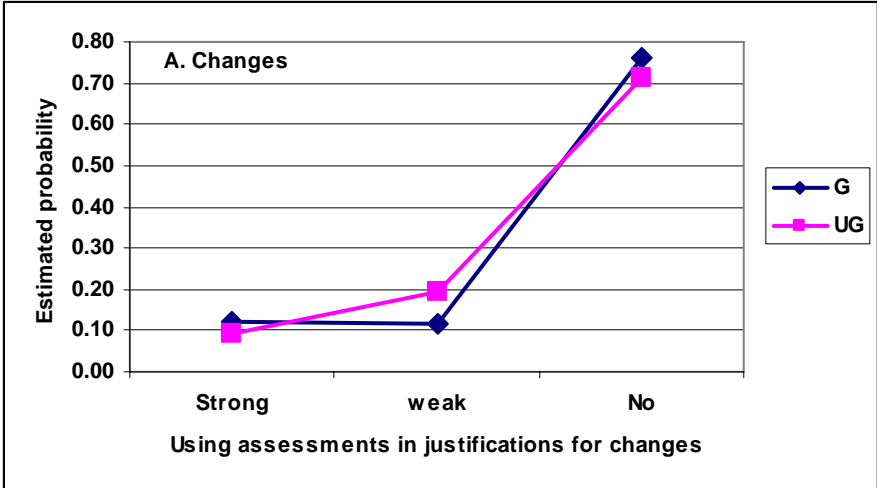
Because the proposal sample size in undergraduate degrees ( $n = 659$ ) is much greater than that in graduate degrees ( $n = 107$ ), the difference in the proportion rather than the absolute number of justifications is of most interest in this study. The use of proportion or relative percentage will also remove the effect of sample size for comparison.

The maximum likelihood analysis of variance with PROC CATMOD shows that the estimated probability for each magnitude of using assessment findings (e.g. strong, weak, and no) in justifications is significantly different among the actions proposed (Chi-Square = 79.02, d. f. = 4,  $P < 0.0001$ ) but marginally significant between undergraduate and graduate degrees (Chi-Square = 5.59, d. f. = 2,  $P = 0.061$ ). For example, proposals for new courses, new plans or new subplans have the highest estimated probability of “strong” assessments in justifications, followed by those for course changes and plan or subplan changes, and for course, plan/subplan deletions (Figure 1). The graduate proposals overall have a greater estimated probability of “strong” assessments in justifications than undergraduate proposals; however, such difference is the largest in the proposals for new courses, and new plans/subplans (Figure 1).



**Figure 1.** Comparison of estimated probability of “strong” assessments in justifications among proposals for changing, deleting, and adding (new) courses, plans/subplans as well as the differences between undergraduate (open bars) and graduate (pattern filled bars) programs.

The estimated probabilities of “strong”, “weak”, and “no” in the magnitude of using assessment findings in justifications for changes and deletions are essentially the same between undergraduate and graduate programs except for a little bit higher probability of “strong” and “no” but lower “weak” assessments for graduate programs (Figure 2A, B). However, the estimated probabilities of “strong”, “weak”, and “no” in the proposals for new courses, new plans/subplans significantly differ between graduate and undergraduate programs (Figure 2C). That is, the graduate proposals for new courses and new plans/subplans have a significantly greater estimated probability of “strong” assessments than the undergraduate proposals; however, the undergraduate proposals have a greater probability of “weak” assessments than the graduate proposals (Figure 2C). Nevertheless, at least more than one third of the proposals did not indicate how the past assessments of student learning and others prompted the actions in any extent, especially in proposals for change and deletion. Overall, proposals for new courses and new plans/subplans have the highest probability of strongly using assessment findings in justifications. This is quite interesting considering the fact that proposals for new courses, new plans and subplans are actually not required to include such information in justifications.



**Figure 2.** The uses of assessments of student learning and others in justifications for changes (A), deletions (B) and new (C), and their estimated probability for both graduate (diamond) and undergraduate (square) programs.

*3. 2. Does format used for proposals matter for the appearance and magnitude of using assessment findings in justifications?*

As mentioned earlier, there were no required assessment-related justifications for deleting or creating new courses, plans and subplans at the time of this analysis. However, proposals for changes in courses, plans or subplans have been required to include such information in justifications since September 2005. Now the section of justification in proposals based on the format revised in September 2005 or later includes the question: “Justification for course (plan/subplan) change. Please indicate how past assessments of student learning prompted proposed changes”.

It is noted that all graduate and most undergraduate proposals are now based on the new format (revised in September 2005); however, some undergraduate proposals were still based on the old format (revised in September 2004). One interesting question will be if the varied formats make any difference in prompting the use of assessment findings in proposals. Or, does the revised justification question actually matter for the appearance and magnitude of using assessment findings in proposal justifications? This question was answered here with the analysis on undergraduate proposals only (e.g. all graduate proposals are based on new format, Table 2).

The likelihood ratio Chi-Square test showed that the new format significantly differed from the old format in the distribution of magnitude of using assessment findings in the proposals (Chi-Square = 6.51, d. f. = 2,  $P = 0.0385$ ). For example, no single “strong” assessment was found in undergraduate proposals utilizing the old form. However, it should be noted that some proposals in the old format still applied occasional if weak assessment information to justify proposed changes (Table 2).

On the other hand, not every proposal in the new format included assessments of student learning. This is perhaps because some proposals for changes are merely for course numbering, prefix, sequences, replacement, and adjustment in content, housekeeping and catalogue clean up (Appendix 1). In such case, the magnitude of using assessments of student learning in justification is likely not applicable or self-evident. In another scenario, however, the lack of assessments in justification could be due to an early implementation of assessment plans for most academic units on campus, and thus no concrete assessment results were yet available.

**Table 2.** The format used for proposals for changes in courses, plans and subplans, and the magnitude of using assessments in justifications for both undergraduate and graduate programs

Degree Programs	Format Used	No. of proposals for changes in courses, and plans/subplans	Justification with Assessments of Student Learning
Undergraduate (AY 05-06, and AY 06-07) (n=432)	Old (Sept. 2004)	0	Strong
		9	Weak
		28	No
	New (Sept. /Dec. 2005, and Aug. 2006)	33	Strong
		75	Weak
		287	No
Graduate (AY 06-07) (n=58)	New* (Sept. 2005, and Aug. 2006)	14	Strong
		6	Weak
		38	No

\* The date of some formats is not identified and some proposals did not use the format required by the UGC.

#### 4. Conclusion and Recommendations

This analysis involved 766 undergraduate and graduate proposals submitted in AY 05-06 and AY 06-07 to the UCC and UGC, respectively. Roughly 36% of them included “strong” or “weak” assessment findings to justify proposed changes, and approximately 12% of them strongly applied assessments for justifications. Somewhat surprisingly, graduate proposals tended to reveal stronger assessment-related justifications than undergraduate proposals, particularly in proposals for new courses, new plans and new subplans. Further, proposals for new courses, new plans and subplans also had the highest estimated probability of strongly using assessments for justifications. Most significantly, the revised justification question on the new form appears to have prompted a sizeable increase in the percentage of justifications employing assessment findings.

It is therefore recommended that (1) Assessment-related justifications be required for all relevant course-or curriculum-change proposals, (2) A prompt mentioning examples of potential assessment information could be included in the respective proposal form instructions, and (3) Members of the UCC and UGC are encouraged to work with the Office of Academic Assessment to determine potential methods of promoting the use of assessment findings when reviewing proposals. An increased emphasis on assessment by the UCC and UGC may significantly improve the quality and proportion of future course/program change proposals.

**Appendix 1.** Rubric employed to classify the magnitude of using assessments of student learning in justifications (e.g. strong, weak, and no) based on key words and phrases extracted from the proposals investigated.

Actions Proposed	Categorization of Justification with Assessments	Key Words and Phrases
Change	Strong	Recommendations from the program advisory board/committee and evaluation of assessment feedback; the assessment results of student learning; results from faculty evaluation, exit interview and student questionnaires; peer institution reviews; feedback from accreditation bodies, outside agencies; the requirement of national association; alignment of the curricula to the requirement of federal, state, and accreditation agents or professional associations (e.g. to pursue NCATE accreditation); past experience and student performance statistics; employment consideration; enhance student skill set (to increase competency in job market); changes in degree plan organization and emphasis areas.
	Weak	Very few such course/plan exists; expanding the availability to both undergraduate and graduate students; increasing student interests and demands; following the recommendations of the committee or accreditation agencies; preparation for the accreditation visit and response to the accreditation standards ; provide more flexibility to students (e.g. in prerequisite requirement and credit hours); to alleviate some inconsistency (e.g. course sequence, course descriptions)
	No	Addition to the component of new programs; adjustment in course content and requirement, co-convene, title, prefix, numbering, and credit hours; catalogue clarity, error corrections, cross listings; no longer existence; course replacement, prerequisite change; redundant information, and simplification of curriculum; and housekeeping and catalogue clean up.
Deletion	Strong	Team review and consultation with steering committee; accrediting agency requirement; curriculum gaps identified in review; extreme low student enrollment to moribund; lack of resources (e.g. faculty expertise)
	Weak	Follow the guidelines; alignment with other institutions; (course) not applicable under a new plan; no longer required or needed; redundant;
	No	Replacement/substitution; course adjustment; prefix changes; housekeeping and catalogue clean up.

Actions Proposed	Categorization of Justification with Assessments	Key words and phrases
New	Strong	Meet the requirement of ABOR and accreditation agencies; certification requirement; recommendation of advisory board/committee; assessment feedbacks; fill the gaps of knowledge (to keep up with the theory and technology development in the study area); accreditation agency requirement for needed competency; lack of competition programs at other institutes; previous successful experience and student performance statistics.
	Weak	Addition to the part of new program or emphasis areas (e.g. core technology); expanding plan for a wider suite of courses; no current course/plans offered at NAU (e.g. first time such course or plan); few universities offer such course (competition niches); growing expertise in the field of study; growing interests from students, employers, and job market (in demand); better prepare for students for the real world.
	No	Catalog clean up; first time course provided; course numbering change; and others such as course sequence adjustment, replacement, course and curriculum revision, and strengthening, expanding the availability.