Teaching and Learning Roadmap Committee Report
For the TAMU Academic Master Plan

EXECUTIVE SUMMARY

In November 2008, the Academic Master Plan Teaching and Learning Roadmap Committee (TLRC, Appendix A) was charged with defining strategic improvements to the existing educational environment in order to strengthen the preparation of graduates of Texas A&M University (TAMU) for the 21st Century (Appendix B). As a result of this charge, the TLRC recommends the following ***teaching and learning goal*** for the university: Students at Texas A&M University will achieve a set of university student learning outcomes through high-impact experiences that position them for a lifetime of success. We also recommend that this goal and the emphases in the following sets of university student learning outcomes be summarized in the following ***overarching university learning statement***:

Aggies lead the way as responsible, reflective, and respectful lifelong learners.

To formalize sets of university student learning outcomes that signify excellence in graduates of TAMU at the baccalaureate, master's, and doctoral levels, the TLRC reviewed the documents that have been developed at TAMU over the past few years related to student learning outcomes, including the general education outcomes approved by the Faculty Senate in 2008, the outcomes presented by the 2006 Final Report of the Task Force on Enhancing the Undergraduate Experience (the "Murano report") and the core curriculum outcomes in the undergraduate catalog—along with the new program assessment plans for upcoming accreditation (in WEAVEonline). As a result of this review, the TLRC developed a proposed set of 22 student learning outcomes. Faculty engagement opportunities were provided through departmental meetings, an on-line survey, and a university-wide forum from which data were collected to create sets of student learning outcomes based on university-wide consensus. Each resulting set of university student learning outcomes listed below is explained in greater detail in the full report.

Recommended University Student Learning Outcomes for a Baccalaureate Degree

A student who graduates from TAMU with a baccalaureate degree will have acquired the knowledge and skills necessary to:

- Master the depth of knowledge required for a degree.
- Demonstrate critical thinking.
- Communicate effectively.
- Practice personal and social responsibility.
- Demonstrate social, cultural, and global competence.
- Prepare to engage in lifelong learning.
- Work collaboratively.

Recommended University Student Learning Outcomes for a Master's Degree

A student who graduates from TAMU with a master's degree will:

- Master degree program requirements, including theories, concepts, principles, and practice, and develop a coherent understanding of the subject matter through synthesis across courses and experiences.
- Apply subject matter knowledge in a range of contexts to solve problems and make decisions.
- Use a variety of sources and evaluate multiple points of view to analyze and integrate information and to conduct critical, reasoned arguments.
- Communicate effectively.
- Use appropriate technologies to communicate, collaborate, conduct research, and solve problems.
- Develop clear research plans and conduct valid, data-supported, theoretically consistent, and institutionally appropriate research.
- Choose ethical courses of action in research and practice.

Recommended University Student Learning Outcomes for a Doctoral Degree

A student who graduates from TAMU with a doctoral degree will:

- Master degree program requirements, including theories, concepts, principles, and practice; develop a coherent understanding of the subject matter through synthesis across courses and experiences; and apply subject matter knowledge to solve problems and make decisions.
- Apply a variety of strategies and tools, use a variety of sources, and evaluate multiple points of view to analyze and integrate information and to conduct critical, reasoned arguments.
- Communicate effectively.
- Develop clear research plans, conduct valid, data-supported, theoretically consistent, and institutionally appropriate research and effectively disseminate the results of the research in appropriate venues to a range of audiences.
- Use appropriate technologies to communicate, collaborate, conduct research, and solve problems.
- Teach and explain the subject matter in their discipline.
- Choose ethical courses of action in research and practice.

Recommended Strategies for Supporting Achievement of the University's Teaching and Learning Goal

To achieve this goal, the TLRC recommends implementation of the following ***strategies***. Specific indicators of progress related to each strategy are presented in the full report.

- The University will support the dissemination and assimilation of a set of University Student Learning Outcomes that were created through the TLRC consensus-building process.
- The University will provide academic and social support systems to help every student maximize his or her opportunities.
- The University will provide institutional support for faculty and staff to offer a diverse set of high-impact courses and learning experiences from which each student may choose.

- The University will provide professional development and appropriate rewards to support the design and implementation of high-impact courses and learning experiences to promote student achievement of the university learning outcomes.
- The University will support the design and implementation of assessment plans for evaluating student achievement of the university learning outcomes and use the results from these assessment plans to promote continuous improvement.

Recommendation for Sustainability

To support implementation and insure sustainability of the recommended strategies, the TLRC urges the University to incorporate within the existing organizational structure an entity designed to directly address the ongoing issues related to teaching and learning, including allocation of resources. While various reports have been issued over the years to identify many of the high-impact programs that are being recommended, there has been no centralized entity tasked with the role to assist in implementation and monitor resulting impacts on students. The establishment of an office and personnel for the management of issues related to teaching and learning, on a par with the University's management of issues related to diversity, would help confirm the administration's interest in teaching and learning. Existing, currently more specialized, entities related to teaching and learning, such as the Center for Teaching Excellence and the Office for Institutional Assessment, could be expanded and integrated in the creation of a more centralized office with more extensive and inter-related responsibilities. In this way, Texas A&M University, which has the highest undergraduate enrollment per FTE of any Research I Institution in the nation, would stand out from other Research I institutions in its ability to provide the highest quality education possible to its large enrollments at both the graduate and undergraduate levels.

Teaching and Learning Roadmap Committee Report
For the TAMU Academic Master Plan

In November 2008, the Academic Master Plan Teaching and Learning Roadmap Committee (TLRC, Appendix A) was charged with defining strategic improvements to the existing educational environment in order to strengthen the preparation of graduates of Texas A&M University (TAMU) for the 21st Century (Appendix B). The first part of the charge included two main components: the identification of learning outcomes that signify excellence in graduates of TAMU at the baccalaureate, master's, and doctoral levels and the identification of experiences that support student accomplishment of these learning outcomes. In the second part of the charge, the TLRC was asked to identify challenges and barriers to the achievement of these outcomes and experiences, recommend strategies to address these challenges in order to accomplish the desired outcomes, and create metrics to measure progress.

As a result of this charge, the TLRC recommends the following ***teaching and learning goal*** for the university: Students at Texas A&M University will achieve a set of university student learning outcomes through high-impact experiences that position them for a lifetime of success. We also recommend that this goal and the emphases in the following sets of university student learning outcomes be summarized in the following ***overarching university learning statement*** and incorporated into all aspects of student life at TAMU:

Aggies lead the way as responsible, reflective, and respectful lifelong learners.

To formalize sets of university student learning outcomes that signify excellence in graduates of TAMU at the baccalaureate, master's, and doctoral levels, the TLRC reviewed the documents that have been developed at TAMU over the past few years related to student learning outcomes, including the general education outcomes approved by the Faculty Senate in 2008, the outcomes presented by the 2006 Final Report of the Task Force on Enhancing the Undergraduate Experience (the "Murano report") and the core curriculum outcomes in the undergraduate catalog—along with the new program assessment plans for upcoming accreditation (in WEAVEonline). As a result of this review, the TLRC developed a proposed set of 22 student learning outcomes. Faculty engagement opportunities were provided through departmental meetings, an on-line survey, and a university-wide forum from which data were collected to create sets of student learning outcomes based on university-wide consensus. We also make recommendations for indicating progress toward achieving each of these strategies and sustaining improvement toward the recommended goal for teaching and learning.

PROCESS FOR CREATING CONSENSUS ON UNIVERSITY STUDENT LEARNING OUTCOMES

After reviewing the documents that have been developed at TAMU over the past few years related to student learning outcomes, including the general education outcomes approved by the Faculty Senate in 2008, the outcomes presented by the 2006 Final Report of the Task Force on Enhancing the Undergraduate Experience (the "Murano report") and the core curriculum outcomes in the undergraduate catalog—along with the new program assessment plans for upcoming accreditation

(in WEAVEonline) —the TLRC developed a proposed set of 22 student learning outcomes. Faculty engagement opportunities for creating consensus on sets of outcomes at the baccalaureate, master's, and doctoral levels were provided through the following activities.

1. Information on the TLRC's processes for developing the proposed sets of outcomes were provided on the Provost's website and through appropriate email distribution lists to faculty, program staff, students, and former students.

2. Through a survey on the Provost's website, the TLRC collected feedback on the proposed sets of student learning outcomes. This feedback was provided at the department, program, or individual level. TLRC committee members attended departmental meetings to facilitate discussion of their input on the proposed learning outcomes. The TLRC then synthesized the feedback into a report of the outcomes around which there was consensus (Appendix C).

3. On April 14, 2009, the TLRC held a university-wide forum for discussion of the consensus report to finalize the recommended sets of undergraduate and graduate student learning outcomes. These final sets of outcomes were then used to guide the recommendations in this report as to high-impact courses and learning experiences that would support student achievement of these outcomes.

Recommended University Learning Outcomes for Undergraduates

Drawing on the survey responses (Appendix C), the outcomes that received a high level of consensus at the undergraduate level were grouped according to similarities. To preserve the information from the individual outcomes in each group, the recommended undergraduate outcomes comprise a list of 7 major outcomes, with examples of how each major outcome might be evidenced.

A student who graduates from TAMU with a baccalaureate degree will have acquired the knowledge and skills necessary to:

- Master the depth of knowledge required for a degree, including the ability to
  - Articulate disciplinary and interdisciplinary theories, concepts, principles, skills and practices.
  - Synthesize knowledge across courses and other experiences.
  - Apply knowledge from core curriculum courses, discipline-based courses, and other experiences in a range of contexts to solve problems and make decisions.
- Demonstrate critical thinking, including the ability to
  - Evaluate, analyze, and integrate information from a variety of sources.
  - Use appropriate strategies and tools to represent, analyze, and integrate information.
  - Develop critical, reasoned positions.
- Communicate effectively, including the ability to
  - Demonstrate effective oral communication skills (which could include the use of languages such as American Sign Language for those who do not communicate orally).
  - Demonstrate effective writing skills.

  - Demonstrate effective nonverbal communication skills (which could include appropriate use of performance, design, or representations such as maps, tables and graphs).
  - Listen actively and critically.
  - Present work effectively to a range of audiences.
  - Effectively communicate original and creative ideas.
- Practice personal and social responsibility, including the ability to
  - Practice ethical leadership.
  - Recognize an ethical dilemma and apply rational decision-making in order to address it.
  - Choose ethical courses of action in research and practice.
  - Acknowledge and address the consequences of one's own actions.
  - Engage in local and global civic activities.
- Demonstrate social, cultural, and global competence, including the ability to
  - Live and work effectively in a diverse and global society.
  - Articulate the value of a diverse and global perspective.
  - Recognize diverse economic, political, cultural and religious opinions and practices.
- Prepare to engage in lifelong learning, including the ability to
  - Exhibit the skills necessary to acquire, organize, reorganize and interpret new knowledge.
  - Show proficiency in current technologies and the ability to adapt to emerging technologies.
  - Recognize and participate in activities that enhance wellness of body, mind, and spirit.
  - Formulate a plan of personal goals for continued professional growth.
  - Demonstrate intellectual curiosity.
- Work collaboratively, including the ability to
  - Participate effectively in teams.
  - Consider different points of view.
  - Work with others to support a shared purpose or goal.

Recommended University Learning Outcomes for Graduate Students

Drawing on the survey responses (Appendix C), separate lists of university learning outcomes were created for the master's level and the doctoral level. As with the undergraduate outcomes, those that received high levels of consensus were grouped according to similarities, and summary learning outcomes were fashioned. These outcomes are more detailed than the undergraduate outcomes, and each outcome is more explicit; therefore, examples of how each outcome might be evidenced are not included.

University Student Learning Outcomes for a Master's Degree

A student who graduates from TAMU with a master's degree will:

- Master degree program requirements, including theories, concepts, principles, and practice, and develop a coherent understanding of the subject matter through synthesis across courses and experiences.
- Apply subject matter knowledge in a range of contexts to solve problems and make decisions.
- Use a variety of sources and evaluate multiple points of view to analyze and integrate information and to conduct critical, reasoned arguments.

- Communicate effectively.
- Use appropriate technologies to communicate, collaborate, conduct research, and solve problems.
- Develop clear research plans and conduct valid (data-supported), theoretically consistent, and institutionally appropriate research.
- Choose ethical courses of action in research and practice.

University Student Learning Outcomes for a Doctoral Degree
A student who graduates from TAMU with a doctoral degree will:

- Master degree program requirements, including theories, concepts, principles, and practice; develop a coherent understanding of the subject matter through synthesis across courses and experiences; and apply subject matter knowledge to solve problems and make decisions.
- Apply a variety of strategies and tools, use a variety of sources, and evaluate multiple points of view to analyze and integrate information and to conduct critical, reasoned arguments.
- Communicate effectively.
- Develop clear research plans, conduct valid, data-supported, theoretically consistent, and institutionally appropriate research and effectively disseminate the results of the research in appropriate venues to a range of audiences.
- Use appropriate technologies to communicate, collaborate, conduct research, and solve problems.
- Teach and explain the subject matter in their discipline.
- Choose ethical courses of action in research and practice.

STRATEGIES AND INDICATORS OF PROGRESS FOR THE TEACHING AND LEARNING GOAL

The TLRC recommends the following teaching and learning goal for the university: Students at Texas A&M University will achieve a set of university learning outcomes through high-impact experiences that position them for a lifetime of success. To achieve this goal, the TLRC recommends the following strategies and indicators of progress for each strategy.

Strategy: The University will support the dissemination and assimilation of a set of University Student Learning Outcomes that were created through the TLRC consensus-building.

***Indicator*:** Presentation for consideration of acceptance by the Faculty Senate of the University Learning Statement, the University Student Learning Outcomes for a Bachelor's Degree as an expansion of the existing set for undergraduates (see Appendix D for correlation to existing outcomes), and the new University Student Learning Outcomes for graduate students

***Indicator*:** Assuming acceptance of the University Student Learning Outcomes by the Faculty Senate, then a review of the core curriculum by the Faculty Senate in light of the expanded set of learning outcomes for undergraduates to set the stage for the possibility of developing integrated learning experiences as an alternative approach to selection from a menu of courses [NOTE: This

university-level review of core curriculum would coincide with the Higher Education Coordinating Board's review of core curriculum and could provide formative input to their review.]

Indicator: Assuming acceptance of the learning statement and learning outcomes by the Faculty Senate, then incorporation of these into marketing and communication to students, faculty, staff and outside constituencies

Strategy: The University will provide academic and social support systems to help every student maximize his or her opportunities.

***Indicator*:** Establishment of a university-level office to coordinate the existing and recommended efforts related to teaching and learning (see following section on **Recommendation for Sustainability**)

Indicator: Formation of a Council for Teaching and Learning, similar to the Council of PIs, made of up of a representative sample of Colleges, ranks, and program levels to provide input to university decisions that impact the educational environment [NOTE: This could become a responsibility of the existing University Curriculum Committee.]

Strategy: The University will provide institutional support for faculty and staff to offer a diverse set of high-impact learning experiences from which each student may choose.

***Indicator*:** Review of the current first-year experience opportunities (provided by both Academic and Student Affairs) in order to increase student engagement in "critical inquiry, frequent writing, information literacy, collaborative learning, and other skills that develop students' intellectual and practical competencies….[including] students [engagement] with cutting-edge questions in scholarship and with faculty members' own research" (based on American Association of Colleges and Universities' report , 2008)

Indicator: Inclusion by departments of a capstone experience in every baccalaureate program [NOTE: Capstone experiences could include courses, undergraduate research, service learning projects (individual or group), internships, exhibits, performances, and study abroad.]

Indicator: Review of the current learning experiences related to achieving social, cultural and global competence in order to involve more students and faculty and enhance sustainability, perhaps through expansion of options on campus and abroad (service learning, research, study, work experiences)

Indicator: Identification and facilitation of high-impact learning experiences available for students to participate in during their programs (at both the undergraduate and graduate levels) [NOTE: The Council for Teaching and Learning recommended above could be responsible for this action, perhaps through a process of sharing best practices, providing a portal for information and selection , etc.]

Strategy: The University will provide professional development and appropriate rewards to support the design and implementation of courses and high-impact experiences to promote student achievement of the university learning outcomes.

***Indicator*:** Increased involvement of Colleges and Departments in designing requests for Professional Development (e.g. use of resources such as Center for Teaching Excellence)

Indicator: Design of a valid and reliable process for evaluating teaching, with connections built to appropriate rewards [NOTE: The Council for Teaching and Learning recommended above could be responsible for facilitating this design.]

Strategy: The University will support the design and implementation of assessment plans for evaluating student achievement of the university learning outcomes and use the results from these assessment plans to promote continuous improvement.

***Indicator*:** Establishment of a university-level Assessment Committee to address assessment needs at the institutional level and provide guidance for design and implementation of assessment at the program level

RECOMMENDATION FOR SUSTAINABILITY

To support implementation and insure sustainability of the recommended strategies, the TLRC urges the University to incorporate within the existing organizational structure an entity designed to directly address the ongoing issues related to teaching and learning, including allocation of resources. While various reports have been issued over the years to identify many of the high-impact programs that are being recommended, there has been no centralized entity tasked with the role to assist in implementation and monitor resulting impacts on students. The establishment of an office and personnel for the management of issues related to teaching and learning, on a par with the University's management of issues related to diversity, would help confirm the administration's interest in teaching and learning. Existing, currently more specialized, entities related to teaching and learning, such as the Center for Teaching Excellence and the Office for Institutional Assessment, could be expanded and integrated in the creation of a more centralized office with more extensive and inter-related responsibilities. In this way, Texas A&M University, which has the highest undergraduate enrollment per FTE of any Research I Institution in the nation, would stand out from other Research I institutions in its ability to provide the highest quality education possible to its large enrollments at both the graduate and undergraduate levels.

Appendix A

Teaching and Learning Roadmap Committee Members

Frank B. Ashley, Vice Chancellor for Academic Affairs, The Texas A&M University System
Emily Y. Ashworth, Executive Associate Vice President for International Programs
Stephen P. Balfour, Instructional Associate Professor & Director of Informational Technology, College of Liberal Arts
Sarah W. Bednarz, Professor of Geography & Associate Dean, College of Geosciences
Karen L. Butler-Purry, Professor, Department of Electrical & Computer Engineering
Pierce E. Cantrell, Vice President & Associate Provost for Information Technology
Norvella P. Carter, Professor of Teaching, Learning & Culture
Suzanne M. Droleskey, Executive Director of International Student Activities
Prasad N. Enjeti, Associate Dean for Academic Affairs, Texas A&M University at Qatar
Virginia Fajt, Clinical Assistant Professor of Veterinary Physiology and Pharmacology, College of Veterinary Medicine and Biomedical Sciences
Debra A. Fowler, (liaison) Interim Director, Center for Teaching Excellence
Mark Gold, Student Body President
Susan P. Goodwin, Associate Professor of Library Science
Melinda L. Grant, Senior Lecturer in Health & Kinesiology
J. Martyn Gunn, Dean of Undergraduate Programs & Associate Provost for Academic Services (in coordination with Kristin Harper, Assistant Dean of Undergraduate Programs)
Karen E. Hillier, Professor, Department of Visualization
Kelli A. Hutka, Director of Campus Programs, The Association of Former Students
Ann L. Kenimer, Associate Dean, College of Agriculture & Life Sciences
Marty L. Loudder, Associate Dean for Undergraduate Programs & Assessment, Mays Business School
Joan P. Mileski, Associate Professor of Maritime Administration & Marine Sciences, Texas A&M University at Galveston
Paul A. Parrish, Professor of English
Marisol Perez, Assistant Professor of Psychology
Loraine H. Phillips, Director, Institutional Assessment
Anne M. Reber, Director, Disability Services, Office of the Vice President for Student Services
Jane F. Schielack, (Co-Chair) Professor of Mathematics; Associate Dean, College of Science
Timothy P. Scott, Associate Dean, College of Science
Simon J. Sheather, Professor & Head, Department of Statistics
R. Douglas Slack, Regents Professor & Associate Head, Department of Wildlife & Fisheries Sciences
Christine A. Stanley, (Co-Chair) Executive Associate Dean for Faculty Affairs, College of Education & Human Development
Marilla D. Svinicki, Professor & Area Chair, Department of Educational Psychology, The University of Texas at Austin
David Toback, Associate Professor of Physics
David Trejo, Associate Professor, Department of Civil Engineering
Tracey A. Wellington, President, Graduate Student Council
William F. West, Professor, George Bush School of Government & Public Service
Xinyuan Ben Wu, Professor & Associate Head for Graduate Programs, Department of Ecosystem Science & Management

APPENDIX B

Teaching-Learning Roadmap Committee

Christine Stanley, Laurie Jaeger, Janie Schielack, Co-Chairs
Debra Fowler, Liaison

CHARGE:

The Teaching-Learning Roadmap charge is to define strategic improvements to the existing educational environment in order to strengthen the preparation of baccalaureate and post-baccalaureate graduates for the 21st Century.

COMPONENTS OF THE CHARGE:

1) The committee will identify learning outcomes and experiences that signify excellence in graduates of Texas A&M at all levels (baccalaureate, masters, doctorate) by May 1, 2009.

    a. Each degree program at every level (baccalaureate, masters, doctorate) will be asked to submit existing and/or desired learning outcomes and experiences in their program which are required to prepare their graduates to be competent and competitive. (February 16, 2009)

    b. Each degree program at every level (baccalaureate, masters, doctorate) will be asked to submit existing and/or desired learning outcomes and experiences, which define their graduates as unique or distinct from those in peer institutions. (February 16, 2009)

    c. After gathering input from degree programs, feedback will be solicited from stakeholders including students, the Student Senate and the Faculty Senate, Texas A&M Administration, System Administration, Board of Regents, industry, community leaders and former students regarding prioritization of and additions to the desired outcomes and experiences. (March 1, 2009)

    d. Learning outcomes and experiences will be finalized and prioritized and submitted for approval. (April 15, 2009)

2) The committee will identify barriers and challenges to achieving the desired outcomes and experiences, and will recommend strategies to accomplish the desired outcomes and experiences and create metrics to measure progress. (May 15, 2009)

In accomplishing its charge, the committee will attend to the efforts of previous reports and task forces, including, but not limited to the Undergraduate Task Force of 2005, the Murano Report, and the Education Environment Council (EEC).

Common to all three roadmaps will be overarching enablers of success; including:

- Developing human potential at Texas A&M
    - Recruiting and mentoring for excellence
    - Building diverse communities
    - Enhancing support systems (campus-wide research centers or institutes, interdisciplinary programs, learning communities, technology mediated instruction, etc.)
    - Quality of life
- Engaging and integrating international programs and globalization endeavors in all of our pillars
- Enhancing facilities and infrastructure
- Marshalling financial resources

Work will continue into 2009–2010 to develop curricular and program enhancements to realize the desired outcomes and experiences; the committee will propose a framework by which this may be accomplished.

Appendix C

Learning Outcome Survey Results

Statistical Analysis of the Teaching-Learning Survey Results

Professor Simon Sheather

Department of Statistics

Texas A&M University

Overall Aim

- “The results of your ratings of these 22 (learning) outcomes … will be used to move the university community toward **consensus on the student learning outcomes determined to be important for ALL programs** at a given level.”

Survey asked respondents to rate 22 items on the following scale

- -2 Negative: This outcome is not important for students in my program.
- -1 Slightly negative: I could live with students in my program working on this outcome, but it isn't very important.
- 0 Neutral: No opinion on the importance of this outcome for students in my program.
- 1 Slightly positive: I would like for students in my program to work on achieving this outcome, but it isn't essential.
- 2 Positive: Yes, this outcome is important for all students in my program.

Level of Degree

- Bachelors
- Masters
- Doctorate

Results for Bachelor Degrees

Bachelor degrees: Number of survey responses

- Department 58
- Program 20

  (Groups who submitted responses about Programs include Ecosystem Science and Management, Ocean and Coastal Resources, Educational Administration and Human Resource Development, Environmental Programs in Geosciences, International Programs Committee (IPECC), International Studies Degree Program, Performance Studies, Undergraduate Special Programs, UPAS, Student Life Studies, Veterinary Pathobiology)
- Individual 273

Bachelor degrees: 2 Different Approaches

1) Nominal data: Likelihood Ratio Chi-Square = 1930.3, DF = 84, P-Value = 0.000
2) Quantitative data: Analysis of Variance F = 92.8, DF = 21, 7700, P-Value = 0.000

- Conclusion: Very strong evidence that the importance ratings of learning outcomes for bachelor degrees differ across at least some of the 22 outcomes

Bachelor degrees: Are these differences in ratings consistent across “Colleges”?

- Agriculture and Life Sciences, Architecture, Dwight Look College of Engineering, Education & Human Development, Galveston, Geosciences, Liberal Arts, Mays Business School, Science, Veterinary Medicine & Biomedical Sciences, Other
- “Other” includes Academic Affairs, General Academic Programs, Institutional & Federal Affairs, International Programs, Office of the Provost, Student Affairs, University Libraries

Bachelor degrees: Department Level responses

1) Interaction between College and Ratings: Analysis of Variance F = 1.09, DF = 210, 1034, P-Value = 0.208

- Conclusion: The differences in department level importance ratings of learning outcomes for bachelor degrees are consistent across colleges

Bachelor degrees: Program Level responses

1) Interaction between College and Ratings: Analysis of Variance F = 1.03, DF = 147, 264. P-Value = 0.413

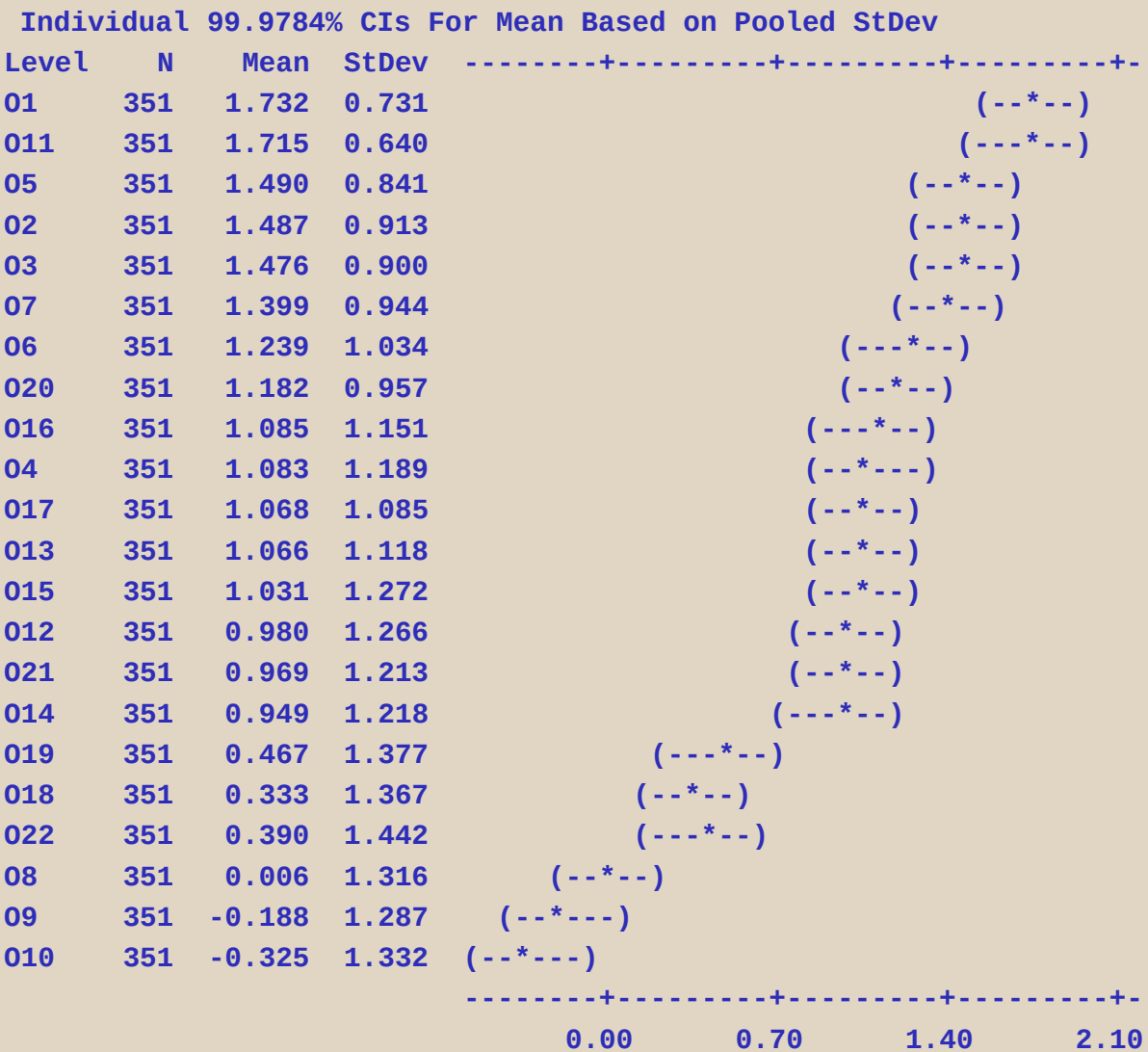
- Conclusion: The differences in program level importance ratings of learning outcomes for bachelor degrees are consistent across colleges

Bachelor degrees: Individual Level responses

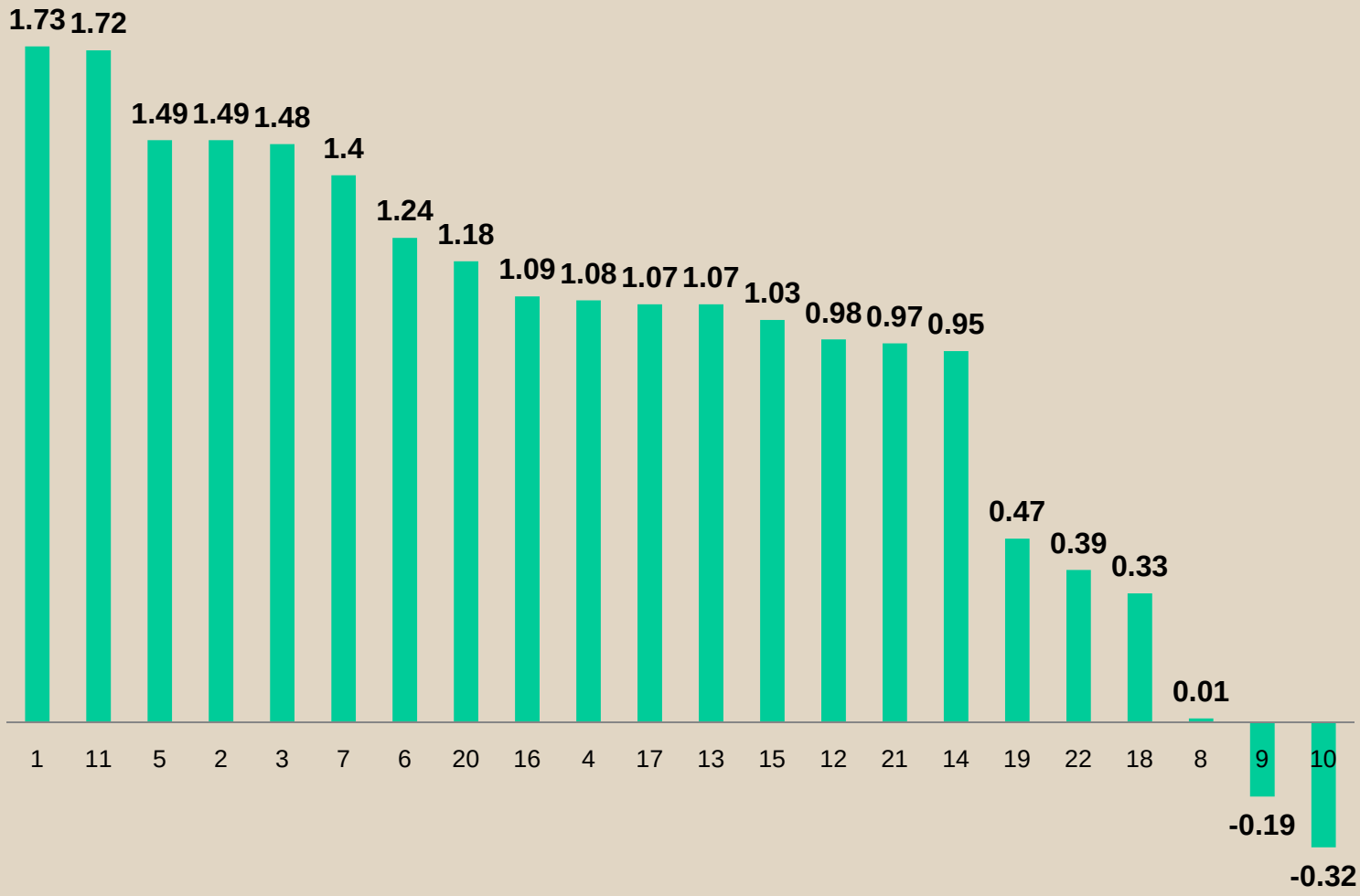
1) Interaction between College and Ratings: Analysis of Variance F = 3.22, DF = 210, 5764, P-Value = 0.000

- Conclusion: The differences in individual importance ratings of learning outcomes for bachelor degrees are NOT consistent across colleges

Bachelor degrees: Mean Importance Ratings - All responses



Bachelor degrees: Mean Importance Ratings: All responses



Bachelor degrees: Mean Importance Ratings

Outcome	Department	Program	Individual	Overall
1	1.79	1.60	1.73	1.73
11	1.62	1.70	1.74	1.72
3	1.24	1.55	1.52	1.48
5	1.19	1.35	1.56	1.49
7	1.09	1.35	1.47	1.4
2	1.03	1.60	1.58	1.49
4	0.98	1.25	1.09	1.08
20	0.97	1.30	1.22	1.18
16	0.97	1.20	1.10	1.09
6	0.93	1.50	1.29	1.24
21	0.93	1.35	0.95	0.97
15	0.90	1.35	1.04	1.03
13	0.86	1.40	1.08	1.07
17	0.72	1.20	1.13	1.07
14	0.57	1.15	1.02	0.95
19	0.14	0.70	0.52	0.47
12	0.07	1.40	1.14	0.98
18	-0.24	0.20	0.47	0.33
22	-0.33	0.90	0.51	0.39
8	-0.55	-0.05	0.13	0.01
9	-0.76	-0.20	-0.07	-0.19
10	-0.81	-0.40	-0.22	-0.32

Bachelor degrees: Mean Importance Rankings

Outcome	Department	Program	Individual
1	1	2	2
11	2	1	1
3	3	4	5
5	4	8	4
7	5	8	6
2	6	2	3
4	7	13	12
20	8	12	8
16	8	14	11
6	10	5	7
21	10	8	16

12	17	6	9

Bachelor degrees:“Consensus clusters”

- Outcomes 1-7:
  “master degree program requirements”, “apply subject matter knowledge in a range of contexts”, “evaluate, analyze, and integrate information”, “conduct critical, reasoned arguments”, “synthesize knowledge”, “apply knowledge from multiple fields/disciplines”, “represent, analyze, and integrate information”
- Outcome 11:
  “communicate effectively”
- Outcome 20:
  “intellectual curiosity and the skills required to engage in lifelong learning”
- Outcome 16:
  “international perspective needed in order to live and work effectively in a diverse and global society”
- Outcome 21:
  “participate effectively in teams”

Groups who submitted responses about Programs include

Addendum to Results for Bachelors Degrees: Survey of Former Students Results

Bachelor degrees: Number of survey responses from former students

- Former students with undergraduate degrees 55
- Former students with both undergraduate and graduate degrees 11

Bachelor degrees: Mean Importance Ratings from Former Students with only Undergraduate Degrees

Outcome	Department	Program	Individual	FormerStudents
1	1.79	1.60	1.73	1.63
2	1.03	1.60	1.58	1.52
3	1.24	1.55	1.52	1.77
4	0.98	1.25	1.09	1.60
5	1.19	1.35	1.56	1.60
6	0.93	1.50	1.29	1.38
7	1.09	1.35	1.47	1.43
8	-0.55	-0.05	0.13	0.69
9	-0.76	-0.20	-0.07	0.51
10	-0.81	-0.40	-0.22	0.65
11	1.62	1.70	1.74	1.91
12	0.07	1.40	1.14	1.66
13	0.86	1.40	1.08	1.65
14	0.57	1.15	1.02	1.62
15	0.90	1.35	1.04	1.15
16	0.97	1.20	1.10	0.95
17	0.72	1.20	1.13	1.54
18	-0.24	0.20	0.47	0.95
19	0.14	0.70	0.52	1.46
20	0.97	1.30	1.22	1.54
21	0.93	1.35	0.95	1.54
22	-0.33	0.90	0.51	1.58

Bachelor degrees: Mean Importance Rankings from Former Students with only Undergraduate Degrees

Outcome	Department	Program	Individual	FormerStudents
1	1	2	2	5
2	6	2	3	13
3	3	4	5	2
4	7	13	12	7
5	4	8	4	7
6	10	5	7	16
7	5	8	6	15
8	20	20	20	20
9	21	21	21	22
10	22	22	22	21
11	2	1	1	1
12	17	6	9	3
13	13	6	13	4
14	15	16	15	6
15	12	8	14	17
16	8	14	11	18
17	14	14	10	10
18	18	19	19	18
19	16	18	17	14
20	8	12	8	10
21	10	8	16	10
22	19	17	18	9

Results for Masters Degrees

Masters degrees: Number of survey responses

- Department 40
- Program 19
- Individual 153

Masters degrees: 2 Different Approaches

1) Nominal data: Likelihood Ratio Chi-Square = 532.363, DF = 84, P-Value = 0.000
2) Quantitative data: Analysis of Variance F = 15.69, DF = 21, 4642, P-Value = 0.000

- Conclusion: Very strong evidence that the importance ratings of learning outcomes for Masters degrees differ across at least some of the 22 outcomes

Masters degrees: Are these differences in ratings consistent across “Colleges”?

- Agriculture and Life Sciences, Architecture, Dwight Look College of Engineering, Education & Human Development, Galveston, Geosciences, Liberal Arts, Mays Business School, Science, Veterinary Medicine & Biomedical Sciences, Other

Masters degrees: Department Level responses

1) Interaction between College and Ratings: Analysis of Variance F = 1.05, DF = 147, 704, P-Value = 0.334

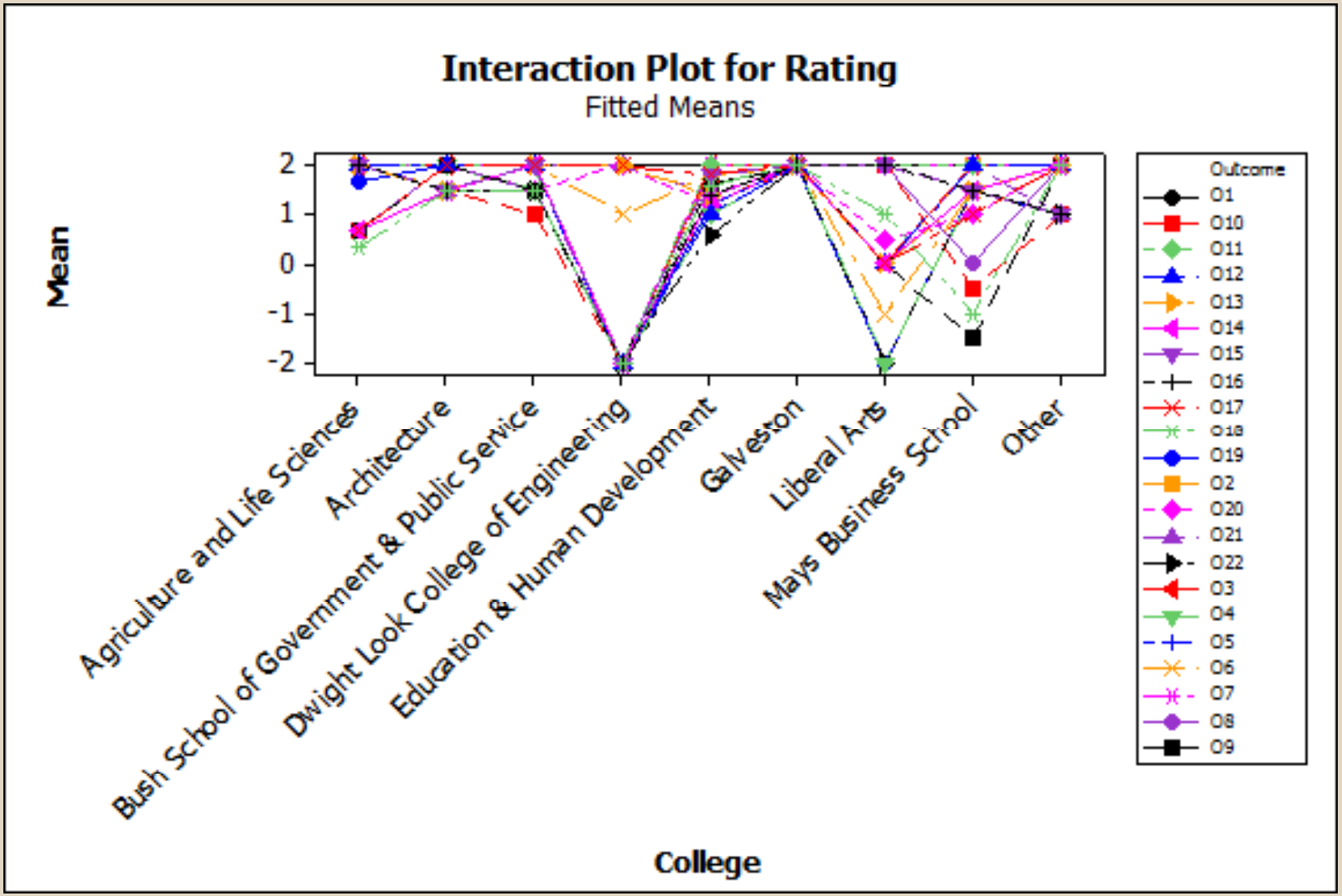
- Conclusion: The differences in department level importance ratings of learning outcomes for Masters degrees are consistent across colleges

Masters degrees: Program Level responses

1) Interaction between College and Ratings: Analysis of Variance F = 1.78, DF = 168, 220, P-Value = 0.000

- Conclusion: The differences in program level importance ratings of learning outcomes for Masters degrees are NOT consistent across colleges

Masters degrees: Program level ratings



Masters degrees: Individual Level responses

1) Interaction between College and Ratings: Analysis of Variance F = 3.22, DF = 231, 3102, P-Value = 0.000

- Conclusion: The differences in individual level importance ratings of learning outcomes for Masters degrees are NOT consistent across colleges

Masters degrees: Mean Importance Ratings

Outcome	Department	Program	Individual	Overall
O1	2.00	1.86	2.00	1.90
O11	1.30	1.82	1.79	1.72
O7	1.23	1.61	1.79	1.56
O5	1.20	1.70	1.79	1.61
O17	1.18	1.46	1.42	1.41
O2	1.15	1.73	1.53	1.60
O3	1.10	1.69	1.58	1.57
O4	1.05	1.33	0.95	1.25
O9	1.05	1.02	0.84	1.01
O14	1.03	1.54	1.11	1.40
O8	1.00	1.01	1.16	1.02
O20	0.90	1.50	1.47	1.38
O6	0.88	1.55	1.47	1.42
O10	0.83	0.91	1.11	0.91
O18	0.70	1.15	0.90	1.04
O15	0.68	1.24	1.58	1.16
O19	0.68	1.05	0.95	0.97
O16	0.65	1.25	1.42	1.15
O13	0.63	1.40	1.53	1.26
O12	0.58	1.44	1.32	1.27
O21	0.50	1.28	1.53	1.16
~~O22~~	~~-0.53~~	~~1.16~~	~~0.79~~	~~0.81~~

Masters degrees: Mean Importance Rankings

Outcome	Department	Program	Individual	Overall
O1	1	1	1	1
O11	2	2	2	2
O7	3	6	2	6
O5	4	4	2	3
O17	5	10	12	8
O2	6	3	7	4
O3	7	5	5	5
O4	8	13	18	13
O9	8	20	21	19
O14	10	8	16	9
O8	11	21	15	18

Masters degrees:“Consensus clusters”

- Outcomes 1-5, 7:
  “master degree program requirements”, “conduct critical, reasoned arguments”, “evaluate, analyze, and integrate information”, “synthesize knowledge”, “apply subject matter knowledge to solve problems and make decisions”, “apply knowledge from multiple fields/disciplines”
- Outcome 11:
  “communicate effectively”
- Outcome 17:
  “use appropriate technologies to communicate, collaborate, conduct research, and solve problems”
- Outcomes 8, 9:
  “construct and conduct valid (data-supported), theoretically consistent, and institutionally appropriate research”, “design and develop clear research plans”
- Outcome 14:
  “choose ethical courses of action in research and practice.”

Results for Doctoral Degrees

Doctoral degrees: Number of survey responses

- Department 40
- Program 19
- Individual 235

Doctoral degrees: 2 Different Approaches

1) Nominal data: Likelihood Ratio Chi-Square = 733.529, DF = 84, P-Value = 0.000
2) Quantitative data: Analysis of Variance F = 29.12, DF = 21, 6446, P-Value = 0.000

- Conclusion: Very strong evidence that the importance ratings of learning outcomes for doctoral degrees differ across at least some of the 22 outcomes

Doctoral degrees: Are these differences in ratings consistent across “Colleges”?

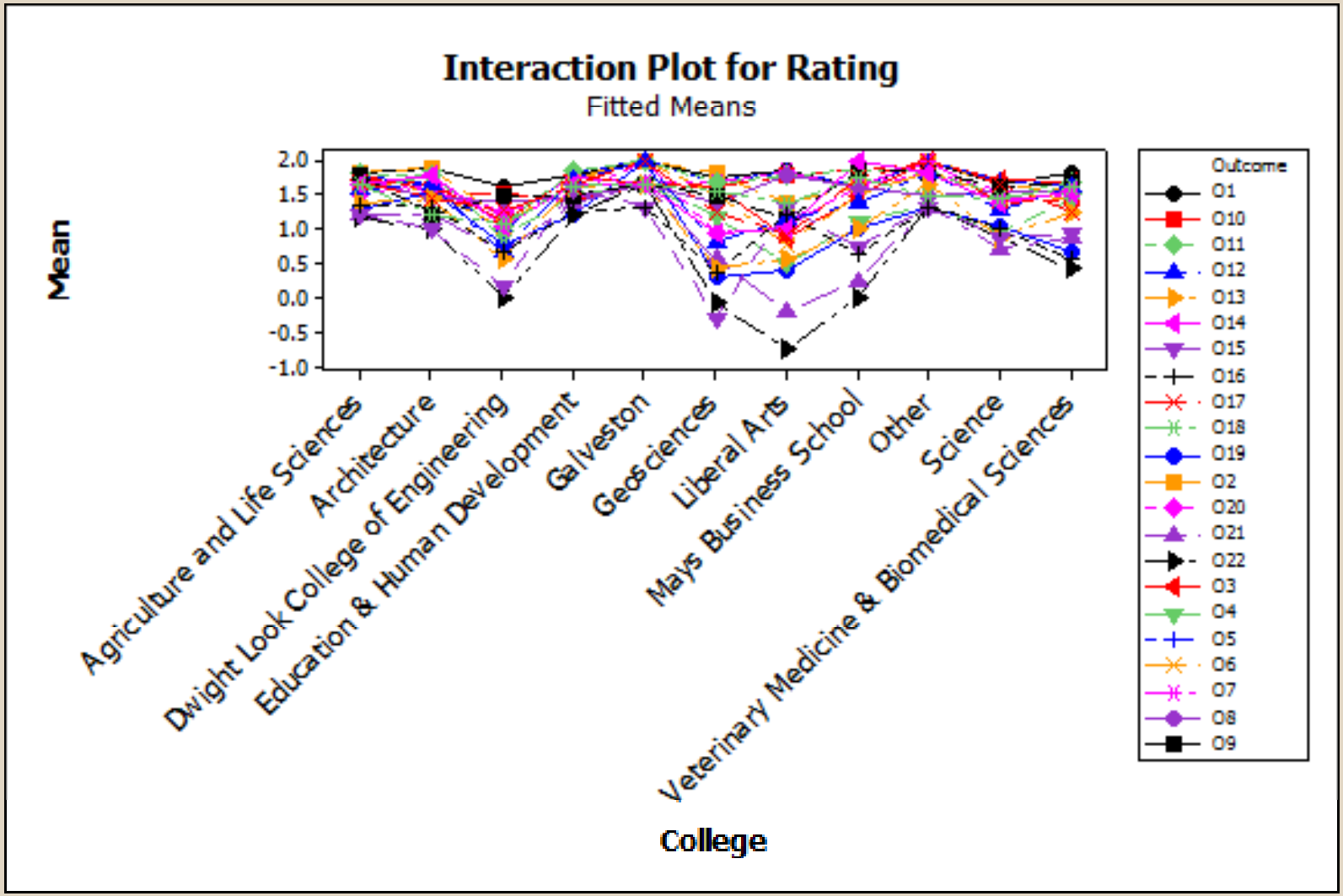
- Agriculture and Life Sciences, Architecture, Dwight Look College of Engineering, Education & Human Development, Galveston, Geosciences, Liberal Arts, Mays Business School, Science, Veterinary Medicine & Biomedical Sciences, Other

Doctoral degrees: Department Level responses

1) Interaction between College and Ratings: Analysis of Variance F = 2.27, DF = 210, 6226, P-Value = 0.000

- Conclusion: The differences in department level importance ratings of learning outcomes for doctoral degrees are NOT consistent across colleges

Doctoral degrees: Department level ratings



Doctoral degrees: Program Level responses

1) Interaction between College and Ratings: Analysis of Variance F = 1.07, DF = 147, 242, P-Value = 0.231

- Conclusion: The differences in program level importance ratings of learning outcomes for doctoral degrees are consistent across colleges

Doctoral degrees: Individual Level responses

1) Interaction between College and Ratings: Analysis of Variance F = 1.93, DF = 210, 4928, P-Value = 0.000

- Conclusion: The differences in individual level importance ratings of learning outcomes for doctoral degrees are NOT consistent across colleges

Doctoral degrees: Mean Importance Ratings

Outcome	Department	Program	Individual	Overall
O1	1.85	1.79	1.68	1.79
O11	1.40	1.76	1.68	1.70
O5	1.25	1.76	1.84	1.69
O2	1.35	1.73	1.42	1.66
O7	1.58	1.66	1.84	1.66
O3	1.13	1.63	1.32	1.54
O10	1.65	1.61	1.68	1.62
O8	1.65	1.58	1.53	1.59
O6	1.03	1.56	1.21	1.46
O9	1.78	1.54	1.21	1.55
O17	1.28	1.54	1.16	1.48
O18	1.30	1.54	1.68	1.51
O12	0.95	1.50	1.21	1.41
O14	1.30	1.48	1.42	1.45
O20	1.08	1.46	1.42	1.41
O4	1.10	1.29	1.16	1.25
O13	0.78	1.23	0.90	1.14
O15	0.73	1.14	0.90	1.07
O16	0.93	1.14	0.90	1.10
O19	1.00	1.05	0.47	1.00
O21	0.58	0.96	0.79	0.90
O22	0.05	0.77	0.11	0.63

Doctoral degrees: Mean Importance Rankings

Outcome	Department	Program	Individual	Overall
O1	1	1	3	1
O11	6	2	3	2
O5	11	2	1	3
O2	7	4	8	4
O7	5	5	1	4
O3	12	6	11	9
O10	3	7	3	6
O8	3	8	7	7
O6	15	9	12	12
O9	2	10	12	8
O17	10	11	15	11
O18	8	11	3	10

Doctoral degrees:“Consensus clusters”

- Outcomes 1-3, 5-7:
  “master degree program requirements”, “evaluate, analyze, and integrate information”, “synthesize knowledge”, “conduct critical, reasoned arguments”, “apply subject matter knowledge”, “represent, analyze, and integrate information”
- Outcome 11:
  “communicate effectively”
- Outcomes 8-10:
  “disseminate research results”, “design and develop clear research plans”, “construct and conduct valid … and … appropriate research”
- Outcome 17:
  “use appropriate technologies to communicate, collaborate, conduct research, and solve problems”
- Outcome 18:
  “able to teach and explain the subject matter in their discipline”

Appendix D

Relationships between Existing Sets of Student Learning Outcomes

Goals for UG Education (as per AAC&U)	**Proposed (2009) TAMU Student Learning Outcomes for a Baccalaureate Degree**	Existing General Education Outcomes (2008)	Undergraduate Council Outcomes (Murano Report 2005)	Core Curriculum Outcomes (current UG catalog)
Knowledge of Human Cultures and the Physical and Natural World	Master the depth of knowledge required for a degree.	Master the depth of knowledge required of a discipline.	Master the depth of knowledge required of a discipline.	Without knowledge of mathematics, the language of science; and logic, the art of critical inquiry; it is not possible to understand or participate in the development of knowledge. Knowledge and appreciation of science as a significant human activity, rather than merely a listing of results or collection of data, is acquired only by engaging in the activities of science. Knowledge of our culture and its ideals makes possible both social integration and self-realization. As the human social environment becomes more complex, it is increasingly important for individuals to understand the nature and function of their social, political and economic institutions.

Intellectual and Practical Skills	Demonstrate critical thinking. Communicate effectively. Work collaboratively.	Demonstrate critical analytical skills. Communicate effectively in writing and speaking.	Communicate effectively in writing and speaking. Critically analyze.	The ability to communicate through the use of the spoken or written word requires the development of speech and writing skills. Without knowledge of mathematics, the language of science; and logic, the art of critical inquiry; it is not possible to understand or participate in the development of knowledge.
Personal and Social Responsibility	Practice personal and social responsibility. Demonstrate social, cultural, and global competence. Prepare to engage in lifelong learning. Work collaboratively.	Provide ethical leadership in a global and diverse society.	Possess personal integrity. Contribute to society.	As the human social environment becomes more complex, it is increasingly important for individuals to understand the nature and function of their social, political and economic institutions. As individual and national destinies become progressively more interconnected, the ability to survive and succeed is increasingly linked to the development of a more pluralistic, diverse and globally-aware populace.
Integrative Learning	Master the depth of knowledge required for a degree.	Master the depth of knowledge required of a discipline.	Master the depth of knowledge required of a discipline.	