SAINT LOUIS UNIVERSITY
PARKS COLLEGE OF ENGINEERING, AVIATION AND TECHNOLOGY

Department of Aviation Science

Assessment of Graduate Program Student Learning Outcomes

Saint Louis University's University-Wide Student Learning Outcomes for graduate and professional programs define the educational expectations - informed by SLU's Jesuit educational heritage - for all post-baccalaureate students in degree granting programs, regardless of degree or program of study.

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Upon completion of graduate-level programs, all post-baccalaureate SLU graduates will be able to:

1. Assess relevant literature or scholarly contributions in the field(s) of study.
2. Apply the major practices, theories, or research methodologies in the field(s) of study.
3. Apply knowledge from the field(s) of study to address problems in broader contexts.
4. Articulate arguments or explanations to both a disciplinary or professional audience and to a general audience, in both oral and written forms.
5. Evidence of scholarly and/or professional integrity in the field of study.

The Department of Aviation Science's graduate-level programs assess student achievement of these outcomes in the disciplinary context of the field of Aviation. Additionally, the department has developed a Program Assessment Plan by which a subset of courses is assessed to determine whether programmatic changes are required to enable the program student learning outcomes to be met.

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Department of Aviation Science

Graduate Courses – Program Student Learning Outcome Assessment Matrix

Graduate Courses	Program Student Learning Outcomes				
	1. Assess relevant literature or scholarly contributions in the field(s) of study.	2. Apply the major practices, theories, or research methodologies in the field(s) of study.	3. Apply knowledge from the field(s) of study to address problems in broader contexts.	4. Articulate arguments or explanations to both a disciplinary or professional audience and to a general audience, in both oral and written forms.	5. Evidence of scholarly and/or professional integrity in the field of study.
ASCI 5010 Anal of Aviation Safety Data	X	X			
ASCI 5030 Aviation Security Mgt.			X	X	
ASCI 5040 Human Factors in Av Safety				X	
ASCI 5210 Av. Organ. Theory & Mgt.				X	
ASCI 5220 Aviation Safety Programs	X		X		
ASCI 5230 Prof. Ethics and Standards					X
ASCI 5460 Qualitative Analysis	X	X			
ASCI 5470 Quantitative Analysis		X			X
ASCI 5950 Special Study for Exam.				X	
ASCI 5990 Thesis Research				X	
ASCI 6030 Aviation and Public Policy			X		
ASCI 6050 Legal and Ethical Issues in Aviation					X
ASCI 6070 Aviation Training Methods		X			
ASCI 6990 Dissertation Research				X	

Program Assessment Plan

Program: Master's in Aviation and Doctor of Philosophy in Aviation

Department: Aviation Science

College/School: Parks College of Engineering, Aviation and Technology

Date: xx/xx/xxxx

Primary Assessment Contact: Stephen G. Magoc, Chairperson

Note: Each cell in the table below will expand as needed to accommodate your responses.

#	**Program Learning Outcomes** What do the program faculty expect all students to know, or be able to do, as a result of completing this program? ▪ *Note: These should be measurable, and manageable in number (typically 4-6 are sufficient).*	**Assessment Mapping** From what specific courses (or other educational/professional experiences) will artifacts of student learning be analyzed to demonstrate achievement of the outcome? Include courses taught at the Madrid campus and/or online as applicable.	**Assessment Methods** What specific artifacts of student learning will be analyzed? How, and by whom, will they be analyzed? ▪ *Note: the majority should provide direct, rather than indirect, evidence of achievement.* Please note if a rubric is used and, if so, include it as an appendix to this plan.	**Use of Assessment Data** How and when will analyzed data be used by faculty to make changes in pedagogy, curriculum design, and/or assessment work? How and when will the program evaluate the impact of assessment-informed changes *made in previous years*?
1	Assess relevant literature or scholarly contributions in the aviation field of study.	The following courses will be used to assess if the graduate program fulfills this student learning outcome: ASCI 5010 Anal Aviation Safety Data ASCI 5220 Aviation Safety Programs ASCI 5460 Qualitative Data Analysis	**Direct Measures**: The student learning outcome will be assessed using data from: Scoring rubrics will be used to determine the successful completion of the assigned article summaries and the assigned literature review as appropriate to the course. **Indirect Measures:** Annual student review survey.	Assessment of the program learning outcome will be assessed on a two-year cycle. The assessment results will be analyzed by the department faculty using a rubric applied to the student data obtained from the courses listed to determine whether the students can apply mathematics, science, and applied science to aviation disciplines. Recommendations for curriculum pedagogy and/or assessment revisions will be made by the department faculty to allow for appropriate implementation. Reviews of the impact of any such

				program changes will be conducted during the following year and the records of these reviews will be maintained by the department and reported to the Dean of Parks College of Engineering, Aviation and Technology and to Saint Louis University's Office of the Provost.
2	Apply the major practices, theories, or research methodologies in the aviation field of study.	The following courses will be used to assess if the graduate program fulfills this student learning outcome: ASCI 5010 Anal Aviation Safety Data ASCI 5460 Qualitative Data Analysis ASCI 5470 Quantitative Data Analysis ASCI 6070 Aviation Training Methods	**Direct Measures**: The student learning outcome will be assessed using data from: Scoring rubrics will be used to determine the students' abilities to select and implement the proper methodology to the stated research question and to appropriately interpret the results obtained. **Indirect Measures:** Annual student review survey.	Assessment of the program learning outcome will be assessed on a two-year cycle. The assessment results will be analyzed by the department faculty using a rubric applied to the student data obtained from the courses listed to determine whether the students can apply mathematics, science, and applied science to aviation disciplines. Recommendations for curriculum pedagogy and/or assessment revisions will be made by the department faculty to allow for appropriate implementation. Reviews of the impact of any such program changes will be conducted during the following year and the records of these reviews will be maintained by the department and reported to the Dean of Parks College of Engineering, Aviation and Technology and to Saint Louis University's Office of the Provost.
3	Apply knowledge from the aviation field of study to address problems in broader contexts.	The following courses will be used to assess if the graduate program fulfills this student learning outcome: ASCI 5030 Aviation Security Mgt. ASCI 5220 Aviation Safety Data ASCI 6030 Aviation Public Policy	**Direct Measures**: The student learning outcome will be assessed using data from: Scoring rubrics will be used to determine the students' abilities to identify, present and discuss the impact of aviation regulations and policies on society. **Indirect Measures:** Annual student review survey.	Assessment of the program learning outcome will be assessed on a two-year cycle. The assessment results will be analyzed by the department faculty using a rubric applied to the student data obtained from the courses listed to determine whether the students can apply mathematics, science, and applied science to aviation disciplines. Recommendations for curriculum pedagogy and/or assessment revisions will be made by the department faculty to allow for appropriate implementation.

				Reviews of the impact of any such program changes will be conducted during the following year and the records of these reviews will be maintained by the department and reported to the Dean of Parks College of Engineering, Aviation and Technology and to Saint Louis University's Office of the Provost.
4	Articulate arguments or explanations to both a disciplinary or professional audience and to a general audience, in both oral and written forms.	The following courses will be used to assess if the graduate program fulfills this student learning outcome: ASCI 5040 Human Factors in Av Safety ASCI 5210 Av. Organ. Theory & Mgt. ASCI 5220 Aviation Safety Programs ASCI 5950 Special Study for Exam. ASCI 5990 Thesis Research ASCI 6990 Dissertation Research	**Direct Measures**: The student learning outcome will be assessed using data from: Scoring rubrics will be used to determine the students' abilities to form, articulate and explain relevant aviation issues in oral and/or written formats as appropriate to the course. **Indirect Measures:** Annual student review survey.	Assessment of the program learning outcome will be assessed on a two-year cycle. The assessment results will be analyzed by the department faculty using a rubric applied to the student data obtained from the courses listed to determine whether the students can apply mathematics, science, and applied science to aviation disciplines. Recommendations for curriculum pedagogy and/or assessment revisions will be made by the department faculty to allow for appropriate implementation. Reviews of the impact of any such program changes will be conducted during the following year and the records of these reviews will be maintained by the department and reported to the Dean of Parks College of Engineering, Aviation and Technology and to Saint Louis University's Office of the Provost.
5	Evidence of scholarly and/or professional integrity in the aviation field of study.	The following course will be used to assess if the graduate program fulfills the student learning outcome: ASCI 5230 Prof. Ethics and Standards ASCI 5470 Quantitative Analysis ASCI 6050 Legal and Ethical Issues in Aviation	**Direct Measures**: The student learning outcome will be assessed using data from: Scoring rubrics will be used to provide evidence that the students maintain professional integrity throughout the scholarly process as appropriate to the course. **Indirect Measures:**	Assessment of the program learning outcome will be assessed on a two-year cycle. The assessment results will be analyzed by the department faculty using a rubric applied to the student data obtained from the courses listed to determine whether the students can apply mathematics, science, and applied science to aviation disciplines. Recommendations for curriculum pedagogy and/or assessment revisions

			Annual student review survey.	will be made by the department faculty to allow for appropriate implementation. Reviews of the impact of any such program changes will be conducted during the following year and the records of these reviews will be maintained by the department and reported to the Dean of Parks College of Engineering, Aviation and Technology and to Saint Louis University's Office of the Provost.

Additional Questions

1. On what schedule/cycle will faculty assess each of the above-noted program learning outcomes? *(It is not recommended to try to assess every outcome every year.)*

The program student learning outcomes will be assessed on a two-year cycle that allows for a complete assessment of all program student learning outcomes during the cycle.

1. Assess relevant literature or scholarly contributions in the aviation field of study.	Spring 2018	Spring 2020	Spring 2022	Spring 2024
2. Apply the major practices, theories, or research methodologies in the aviation field of study.	Spring 2018	Spring 2020	Spring 2022	Spring 2024
3. Apply knowledge from the aviation field of study to address problems in broader contexts.	Spring 2019	Spring 2021	Spring 2023	Spring 2025
4. Articulate arguments or explanations to both a disciplinary or professional audience and to a general audience, in both oral and written forms.	Spring 2019	Spring 2021	Spring 2023	Spring 2025
5. Evidence of scholarly and/or professional integrity in the aviation field of study.	Spring 2019	Spring 2021	Spring 2023	Spring 2025

2. Describe how, and the extent to which, program faculty contributed to the development of this plan.

The faculty of the Department of Aviation Science contributed to the development of the entire plan through a series of meetings and retreats.

3. On what schedule/cycle will faculty review and, if needed, modify this assessment plan?

Reviews of the impact of programmatic changes will be conducted at least once per year and the records of these reviews will be maintained by the department.

IMPORTANT: Please remember to submit any assessment rubrics (as noted above) along with this report.

Performance Indicator Rubric

1. Assess relevant literature or scholarly contributions in the aviation field of study.

Course: _____ Semester Taught: _____ Number of Students Scored: _____

For each item below, please mark the appropriate box to rate the students' strength on a scale of 1 to 4 where 1: beginning, 2: developing, 3: accomplished, and 4: exemplary.

Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project): _____

*Attach description of assignment used for assessment and samples of student work.

Performance Indicator	Beginning	Developing	Accomplished	Exemplary
Student can list the main journals in the field.				
Student can outline the main areas of research in the aviation field of study.				
Student can identify notable research groups and investigators. Student can demonstrate broad knowledge of areas outside of their sub-specialty, and specific knowledge of publications in their field.				
Student can indicate the current key issues and highly-cited papers in the aviation field and identify emerging trends and new research directions.				
Student can identify the most important historical contributions in the aviation field and outline their importance.				
Comments:				

Performance Indicator Rubric

2. Apply the major practices, theories, or research methodologies in the aviation field of study

Course: _____ Semester Taught: _____ Number of Students Scored: _____

For each item below, please mark the appropriate box to rate the students' strength on a scale of 1 to 4 where 1: beginning, 2: developing, 3: accomplished, and 4: exemplary.

Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project): _____

*Attach description of assignment used for assessment and samples of student work.

Performance Indicator	Beginning	Developing	Accomplished	Exemplary
Student is aware of different skills needed to carry out research in Aviation, eg. data analysis, field work, numerical modeling, computational competence.				
Given a figure, student could describe a method that could be used to generate it.				
Student has demonstrated competence with several different skill sets.				
Student has reached expert level in one type of skill.				
Given a paper in Aviation, the student could create a plan to reproduce the study.				
Comments:				

Performance Indicator Rubric

3. **Apply knowledge from the aviation field of study to address problems in broader contexts.**

Course: _____ Semester Taught: _____ Number of Students Scored: _____

For each item below, please mark the appropriate box to rate the students' strength on a scale of 1 to 4 where 1: beginning, 2: developing, 3: accomplished, and 4: exemplary.

Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project): _____

*Attach description of assignment used for assessment and samples of student work.

Performance Indicator	Beginning	Developing	Accomplished	Exemplary
Student can identify the main areas of societal relevance in Aviation.				
Student can explain how the aviation field impacts society.				
Student can apply their knowledge to current policy debates.				
Student can create an engaging presentation for the general public about their research.				
Student can evaluate policy prescriptions and political debates in the light of their discipline.				
Comments:				

Performance Indicator Rubric

4. Articulate arguments or explanations to both a disciplinary or professional audience and to a general audience, in both <u>oral</u> and written forms.

Course: _____ Semester Taught: _____ Number of Students Scored: _____

For each item below, please mark the appropriate box to rate the students' strength on a scale of 1 to 4 where 1: beginning, 2: developing, 3: accomplished, and 4: exemplary.

Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project): _____

*Attach description of assignment used for assessment and samples of student work.

Performance Indicator: Oral Form	Beginning	Developing	Accomplished	Exemplary
Student can give a prepared presentation/talk.				
Student integrates figures and graphics into their presentation.				
Student answers questions competently and adjusts their presentation style based on audience feedback.				
Student uses technical words precisely and is able to explain concepts without jargon.				
Comments:				

Performance Indicator Rubric

4. Articulate arguments or explanations to both a disciplinary or professional audience and to a general audience, in both oral and written forms.

Course: _____ Semester Taught: _____ Number of Students Scored: _____

For each item below, please mark the appropriate box to rate the students' strength on a scale of 1 to 4 where 1: beginning, 2: developing, 3: accomplished, and 4: exemplary.

Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project): _____

*Attach description of assignment used for assessment and samples of student work.

Performance Indicator: Written Form	Beginning	Developing	Accomplished	Exemplary
Student is familiar with examples of excellent writing and with sources of advice on scientific writing.				
Student can write about their work clearly.				
Student can create publication quality figures and graphics.				
Student revises their written work based on feedback.				
Student writing is clear and concise while avoiding confusing sentence constructions.				
Comments:				

Performance Indicator Rubric

5. Evidence of scholarly and/or professional integrity in the aviation field of study.

Course: _____ Semester Taught: _____ Number of Students Scored: _____

For each item below, please mark the appropriate box to rate the students' strength on a scale of 1 to 4 where 1: beginning, 2: developing, 3: accomplished, and 4: exemplary.

Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project): _____

*Attach description of assignment used for assessment and samples of student work.

Performance Indicator	Beginning	Developing	Accomplished	Exemplary
Student knows about cases of fraud in science and can explain the importance of integrity in research.				
Student cites work appropriately.				
Student is able to describe both positive and negative results and give sufficient detail about their work so that it can be replicated.				
Student is able to describe weaknesses in their own work.				
Student is able to question themselves, accept criticism and grow from it.				
Comments:				