



SAINT LOUIS UNIVERSITY

OLIVER L. PARKS DEPARTMENT
OF AVIATION SCIENCE

Assessment of Ph.D. in Aviation 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.



Program-Level Assessment Plan

Program: Ph.D. in Aviation	Degree Level (e.g., UG or GR certificate, UG major, master’s program, doctoral program): Doctoral and Doctorate
Department: Oliver L. Parks Department of Aviation Science	College/School: School of Science and Engineering
Date (Month/Year): June 2022	Primary Assessment Contact: Stephen Magoc

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

#	Student Learning Outcomes	Curriculum Mapping	Assessment Methods	
			Artifacts of Student Learning (What)	Evaluation Process (How)
	<p>What do the program faculty expect all students to know or be able to do as a result of completing this program?</p> <p>Note: These should be measurable and manageable in number (typically 4-6 are sufficient).</p>	<p>In which courses will faculty intentionally work to foster some level of student development toward achievement of the outcome? Please clarify the level at which student development is expected in each course (e.g., introduced, developed, reinforced, achieved, etc.).</p>	<p>1. What artifacts of student learning will be used to determine if students have achieved this outcome?</p> <p>2. In which courses will these artifacts be collected?</p>	<p>1. What process will be used to evaluate the artifacts, and by whom?</p> <p>2. What tools(s) (e.g., a rubric) will be used in the process?</p> <p>Note: Please include any rubrics as part of the submitted plan documents.</p>
1	<p>SLO 1: Assess relevant literature or scholarly contributions in the field(s) of study.</p>	<p>ASCI 5010 Introduction to Aviation Research Methods; Introduced</p> <p>ASCI 5220 Aviation Safety Programs; Developed</p> <p>ASCI 5460 Qualitative Data Analysis; Achieved</p>	<p>1. Evidence from courses including, but not limited to, assignments, quizzes, papers, and student surveys are collected by the department.</p> <p>2. Courses from which artifacts are to be collected: ASCI 5010 Introduction to Aviation Research Methods ASCI 5220 Aviation Safety Programs</p>	<p>1. Faculty of the department will meet at the conclusion of the spring semester to evaluate the artifacts.</p> <p>2. The faculty will evaluate all courses noted by the curriculum mapping section using a rubric for each course. The faculty will use a rubric to determine if Student Learning Outcome 1 has been met.</p> <p>Examples of course rubrics used, and the</p>

			ASCI 5460 Qualitative Data Analysis	rubric used to determine if Student Learning Outcome 1 has been met are found in Appendix A of this assessment plan.
2	SLO 2: Apply the major practices, theories, or research methodologies in the field(s) of study.	ASCI 5010 Introduction to Aviation Research Methods; Introduction ASCI 5460 Qualitative Data Analysis; Achieved ASCI 5470 Quantitative Data Analysis; Achieved ASCI 6070 Aviation Training Methods; Achieved	1. Evidence from courses including, but not limited to, assignments, quizzes, papers, and student surveys are collected by the department. 2. Courses from which artifacts are to be collected: ASCI 5010 Introduction to Aviation Research Methods ASCI 5460 Qualitative Data Analysis ASCI 5470 Quantitative Data Analysis ASCI 6070 Aviation Training Methods	1. Faculty of the department will meet at the conclusion of the fall and spring semesters to evaluate the artifacts. 2. The faculty will evaluate all courses noted by the curriculum mapping section using a rubric for each course. The faculty will use a rubric to determine if Student Learning Outcome 2 has been met. Examples of course rubrics used, and the rubric used to determine if Student Learning Outcome 2 has been met are found in Appendix A of this assessment plan.
3	SLO 3: Apply knowledge from the field(s) of study to address problems in broader contexts.	ASCI 5030 Aviation Security Management; Reinforced ASCI 5210 Aviation Organization Theory and Management; Reinforced ASCI 6030 Aviation and Public Policy; Achieved	1. Evidence from courses including, but not limited to, assignments, quizzes, papers, and student surveys are collected by the department. 2. Courses from which artifacts are to be collected: ASCI 5030 Aviation Security Management ASCI 5210 Aviation Organization Theory and Management ASCI 6030 Aviation and Public Policy	1. Faculty of the department will meet at the conclusion of the fall and spring semesters to evaluate the artifacts. 2. The faculty will evaluate all courses noted by the curriculum mapping section using a rubric for each course. The faculty will use a rubric to determine if Student Learning Outcome 3 has been met. Examples of course rubrics used, and the rubric used to determine if Student Learning Outcome 3 has been met are found in Appendix A of this assessment plan.
4	SLO 4: Articulate arguments or explanations to both a disciplinary or professional audience and to a general audience, in oral and/or written forms.	ASCI 5030 Aviation Security Management; Reinforced ASCI 5040 Human Factors in Aviation; Reinforced ASCI 5210 Aviation Organization Theory and Management; Reinforced	1. Evidence from courses including, but not limited to, assignments, quizzes, papers, and student surveys are collected by the department. 2. Courses from which artifacts are to be collected:	1. Faculty of the department will meet at the conclusion of the fall and spring semesters to evaluate the artifacts. 2. The faculty will evaluate all courses noted by the curriculum mapping section using a rubric for each course.

			<p>ASCI 5030 Aviation Security Management</p> <p>ASCI 5040 Human Factors in Aviation</p> <p>ASCI 5210 Aviation Organization Theory and Management</p>	<p>The faculty will use a rubric to determine if Student Learning Outcome 4 has been met.</p> <p>Examples of course rubrics used, and the rubric used to determine if Student Learning Outcome 4 has been met are found in Appendix A of this assessment plan.</p>
5	<p>SLO 5: Evidence of scholarly and/or professional integrity in the field of study.</p>	<p>ASCI 5230 Professional Ethics and Standards; Developed</p> <p>ASCI 5470 Quantitative Data Analysis; Achieved</p>	<p>1. Evidence from courses including, but not limited to, assignments, quizzes, papers, and student surveys are collected by the department.</p> <p>2. Courses from which artifacts are to be collected:</p> <p>ASCI 5230 Professional Ethics and Standards</p> <p>ASCI 5470 Quantitative Data Analysis</p>	<p>1. Faculty of the department will meet at the conclusion of the fall and spring semesters to evaluate the artifacts.</p> <p>2. The faculty will evaluate all courses noted by the curriculum mapping section using a rubric for each course.</p> <p>The faculty will use a rubric to determine if Student Learning Outcome 5 has been met.</p> <p>Examples of course rubrics used, and the rubric used to determine if Student Learning Outcome 5 has been met are found in Appendix A of this assessment plan.</p>

Use of Assessment Data

1. How and when will analyzed data be used by program faculty to make changes in pedagogy, curriculum design, and/or assessment practices?

The program student learning outcomes will be assessed on a five-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 2022	Spring 2027	Spring 2032	Spring 2037
2. Apply the major practices, theories, or research methodologies in the aviation field of study.	Spring 2023	Spring 2028	Spring 2033	Spring 2038
3. Apply knowledge from the aviation field of study to address problems in broader contexts.	Spring 2024	Spring 2029	Spring 2034	Spring 2039
4. Articulate arguments or explanations to both a disciplinary or professional audience and to a general audience, in both oral and written forms.	Spring 2025	Spring 2030	Spring 2035	Spring 2040
5. Evidence of scholarly and/or professional integrity in the aviation field of study.	Spring 2026	Spring 2031	Spring 2036	Spring 2041

2. How and when will the program faculty evaluate the impact of assessment-informed changes made in previous years?

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.

Additional Questions

1. On what schedule/cycle will program faculty assess each of the program’s student learning outcomes? (Please note: It is not recommended to try to assess every outcome every year.)

Assessment of student learning outcomes will be conducted at least once per year and the records of these reviews will be maintained by the department.

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.

IMPORTANT: Please remember to submit any rubrics or other assessment tools along with this plan.



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Appendix A

Ph.D. in Aviation

Student Learning Outcome Assessment Rubrics

and

Course Performance Indicator Rubrics

Ph.D. in Aviation Student Learning Outcome Assessment Rubric

Student Learning Outcome #1: Assess relevant literature or scholarly contributions in the aviation field of study.

Date of this assessment:

The following assessment is based on coursework of students and surveys of graduates.

Performance Indicator Assessed	Do not Meet	Meet
Students and graduates 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.		
Students and graduates analyze the current key issues and highly cited papers in the aviation field and synthesize with emerging trends and new research directions.		
Students and graduates identify important historical contributions in the aviation field and outline their importance.		

List any prior change(s) made to the curriculum to aid students and graduates in meeting this student learning outcome:

Describe the effect of any change(s) made to the curriculum:

List recommendation(s) for changes to be made to the curriculum as a result of this assessment:

Ph.D. in Aviation Student Learning Outcome Assessment Rubric

Student Learning Outcome #2: Apply the major practices, theories, or research methodologies in the field(s) of study.

Date of this assessment:

The following assessment is based on coursework of students and surveys of graduates.

Performance Indicator Assesses	Do not Meet	Meet
Students and graduates possess different skills needed to carry out research in Aviation, e.g., quantitative data analysis, numerical modeling, and computational competence.		
Students and graduates possess different skills needed to carry out research in Aviation, e.g., qualitative data analysis and field work.		

List any prior change(s) made to the curriculum to aid students and graduates in meeting this student learning outcome:

Describe the effect of any change(s) made to the curriculum:

List recommendation(s) for changes to be made to the curriculum as a result of this assessment:

Ph.D. in Aviation Student Learning Outcome Assessment Rubric

Student Learning Outcome #3: Apply knowledge from the field(s) of study to address problems in broader contexts.

Date of this assessment:

The following assessment is based on coursework of students and surveys of graduates.

Performance Indicator Assessed	Do not Meet	Meet
Students and graduates identify the main areas of societal relevance in aviation.		
Students and graduates explain how the aviation field impacts society.		
Students and graduates apply their knowledge to current aviation policy debates.		
Students and graduates create an engaging presentation for the general public about their research.		
Students and graduates evaluate policy prescriptions and political debates in the light of their discipline.		

List any prior change(s) made to the curriculum to aid students and graduates in meeting this student learning outcome:

Describe the effect of any change(s) made to the curriculum:

List recommendation(s) for changes to be made to the curriculum as a result of this assessment:

Ph.D. in Aviation Student Learning Outcome Assessment Rubric

Student Learning Outcome #4: Be capable of articulating arguments or explanations to either a disciplinary or professional audience and to a general audience, in both oral and written forms.

Date of this assessment:

The following assessment is based on coursework of students and surveys of graduates.

Performance Indicator Assessed	Do not Meet	Meet
Students and graduates give a prepared presentation/talk.		
Students and graduates integrate figures and graphics into their presentations.		
Students and graduates answer questions competently and adjust their presentation style based on audience feedback.		
Students and graduates use technical words precisely and explain concepts without jargon.		

List any prior change(s) made to the curriculum to aid students and graduates in meeting this student learning outcome:

Describe the effect of any change(s) made to the curriculum:

List recommendation(s) for changes to be made to the curriculum as a result of this assessment:

Ph.D. in Aviation Student Learning Outcome Assessment Rubric

Student Learning Outcome #5: Evidence of scholarly and/or professional integrity in the aviation field of study.

Date of this assessment:

The following assessment is based on coursework of students and surveys of graduates.

Performance Indicator Assessed	Do not Meet	Meet
Students and graduates recognize and understand the importance of integrity in research.		
Students and graduates cite work appropriately.		
Graduates describe both positive and negative results and give sufficient detail about their work so that it can be replicated.		
Students and graduates describe weaknesses in their own work.		
Students and graduates question themselves, accept criticism and grow from it.		

List any prior change(s) made to the curriculum to aid students and graduates in meeting this student learning outcome:

Describe the effect of any change(s) made to the curriculum:

List recommendation(s) for changes to be made to the curriculum as a result of this assessment:

Ph.D. in Aviation Course Performance Indicator Rubric

Student Learning Outcome #1: Assess relevant literature or scholarly contributions in the aviation field of study.

Course Instructor: _____ Course: _____

Semester Taught: _____ Number of Students Scored: _____

Performance Indicator Assessed	Assessment Results: (Indicate what % of class achieved a minimum score of 80%)	Benchmark achieved? (Benchmark: 80% of students will score a minimum of 80% = “B”)
Graduates 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.		
Graduates analyze the current key issues and highly cited papers in the aviation field and synthesize with emerging trends and new research directions.		
Graduates identify important historical contributions in the aviation field and outline their importance.		

Describe any pertinent changes to the courses, types of evidence collected, and/or assessment processes recommended to improve the students' ability to successfully meet this student learning outcome.

Ph.D. in Aviation Course Performance Indicator Rubric

Student Learning Outcome #2: Apply the major practices, theories, or research methodologies in the field(s) of study.

Course Instructor: _____ Course: _____

Semester Taught: _____ Number of Students Scored: _____

Performance Indicator Assesses	Assessment Results: (Indicate what % of class achieved a minimum score of 80%)	Benchmark achieved? (Benchmark: 80% of students will score a minimum of 80% = “B”)
Students and graduates possess different skills needed to carry out research in Aviation, e.g., quantitative data analysis, numerical modeling, and computational competence.		
Students and graduates possess different skills needed to carry out research in Aviation, e.g., qualitative data analysis and field work.		

Describe any pertinent changes to the courses, types of evidence collected, and/or assessment processes recommended to improve the students' ability to successfully meet this student learning outcome.

Ph.D. in Aviation Course Performance Indicator Rubric

Student Learning Outcome #3: Apply knowledge from the field(s) of study to address problems in broader contexts.

Course Instructor: _____ Course: _____

Semester Taught: _____ Number of Students Scored: _____

Performance Indicator Assessed	Assessment Results: (Indicate what % of class achieved a minimum score of 80%)	Benchmark achieved? (Benchmark: 80% of students will score a minimum of 80% = “B”)
Students and graduates are able to identify the main areas of societal relevance in Aviation.		
Students and graduates are able to explain how the aviation field impacts society.		
Students and graduates are able to apply their knowledge to current policy debates.		
Students and graduates are able to create an engaging presentation for the general public about their research.		
Students and graduates are able to evaluate policy prescriptions and political debates in the light of their discipline.		

Describe any pertinent changes to the courses, types of evidence collected, and/or assessment processes recommended to improve the students' ability to successfully meet this student learning outcome.

Ph.D. in Aviation Course Performance Indicator Rubric

Student Learning Outcome #4: Be capable of articulating arguments or explanations to either a disciplinary or professional audience and to a general audience, in both oral and written forms.

Course Instructor: _____ Course: _____

Semester Taught: _____ Number of Students Scored: _____

Performance Indicator Assessed	Assessment Results: (Indicate what % of class achieved a minimum score of 80%)	Benchmark achieved? (Benchmark: 80% of students will score a minimum of 80% = “B”)
Students and graduates give a prepared presentation/talk.		
Students and graduates integrate figures and graphics into their presentations.		
Students and graduates answer questions competently and adjust their presentation style based on audience feedback.		
Students and graduates use technical words precisely and explain concepts without jargon.		

Describe any pertinent changes to the courses, types of evidence collected, and/or assessment processes recommended to improve the students' ability to successfully meet this student learning outcome.

Ph.D. in Aviation Course Performance Indicator Rubric

Student Learning Outcome #5: Evidence of scholarly and/or professional integrity in the aviation field of study.

Course Instructor: _____ Course: _____

Semester Taught: _____ Number of Students Scored: _____

Performance Indicator Assessed	Assessment Results: (Indicate what % of class achieved a minimum score of 80%)	Benchmark achieved? (Benchmark: 80% of students will score a minimum of 80% = “B”)
Students and graduates recognize and understand the importance of integrity in research.		
Students and graduates cite work appropriately.		
Students and graduates describe both positive and negative results and give sufficient detail about their work so that it can be replicated.		
Students and graduates describe weaknesses in their own work.		
Students and graduates question themselves, accept criticism and grow from it.		

Describe any pertinent changes to the courses, types of evidence collected, and/or assessment processes recommended to improve the students' ability to successfully meet this student learning outcome.