

**Ph.D. Program Review Report
Recommendations and Responses**

***Department Chair:
Program Coordinator:***

PREAMBLE: Academics and scholarship manifest the mission of the University. Excellence in scholarship is a primary driver in defining the academic reputation of an institution, and our goal to increase the academic reputation of Embry-Riddle is consistent with the University's status as a Level VI Ph.D.-granting institution. Maintaining quality Ph.D. programs and quality Ph.D.-level scholarship is essential in meeting this goal. The purpose of Ph.D. Program Review is to ensure the continuing quality of all of our Ph.D. programs and enhance the reputation of the university.

OVERVIEW: This document is the Program Review Report that program coordinator/chair will complete and that the Ph.D. Program Review Committee (PPRC) will review. The document is organized into seven sections or constructs.

- I. Ph.D. Program Description: This section will cover the administrative structure, operational description, and Ph.D. academic policies and procedures.
- II. Ph.D. Program Faculty: This section we will review faculty credentials for participating in the Ph.D. program, mentoring Ph.D. candidates, and teaching Ph.D.-level courses. In addition, the Ph.D. program faculty scholarly activities and productivity as well as the Ph.D. program faculty research, teaching and service areas.
- III. Ph.D. Program Students: This section will cover Ph.D. student admission/enrollment processes and statistics, the MS vs BS admits, performance and completion statistics, Ph.D. degrees awarded and the sources of support (internal vs external; mentor - candidate assignment).
- IV. Ph.D. Program Research: In this section, we will review research areas – established, new and signature, external funding, research expenditures. In addition, faculty research productivity and impact on the Ph.D. program productivity (e.g., refereed publications, presentations, professional service, patents, etc.) and Organized Research Unit involvement.
- V. Ph.D. Program Recognition: Within the section, we will uncover the external reputation of the Ph.D. program. Also, the program recognition as reflected in increasing quality of incoming students and in new faculty hires, distinguished faculty hires, Ph.D. faculty and student awards and recognitions, incoming student quality, visiting faculty requests, non-faculty research personnel, etc.
- VI. Ph.D. Program Budget Review: In this section will Five-year Ph.D. program expense/revenue financials compared with the original, proposed five-year budget in the approved AP-04 proposal; the current state of Ph.D. program financials; external funding for research support; the projected five-year budget; suggestions for key areas of need or support for growth or improvement)
- VII. Ph.D. Program Vision for the Future: Project a vision for the state of the program five years from now. In particular consider the program size, such as program faculty, candidates, and staff, primary research directions, involvement with University Organized Research Units, level of external funding, levels of support for Ph.D. candidates, and other significant factors.
- VIII. Cumulative SWOT Analysis and Strategic Action Items: The program engages in ongoing strategic planning that is relevant to the University and Campus plans by identifying program outcomes and tracking progress toward those outcomes in the following areas: finances, enrollments, retention and graduation rates, and appropriate goals related to scholarship.

BACKGROUND INFORMATION: Each section is comprised of subsections that prompt for specific information. In a subsection, a bold arrow icon indicates a narrative box where you will insert specific responses the document. The narrative box will expand as text is added. Appendices contain data for you to analyze, and information to assist in the review process.

I. Ph.D. Program Description

In this Section, we review Administrative Structure, Operations, and Ph.D. Academic Policies and Procedures.

1.1 Administrative Structure

Instructions:

- Describe the current administrative structure of this Ph.D. program. Has the current structure changed from the original structure as defined in the Program AP-04 proposal provided on the [PhD Program Review SharePoint](#) site? If so, please explain the reasons for the change and how the change has improved the administration of the Ph.D. program.

[Attachment 1_1_1_db_phdhf or phdme – PhD Program AP-04 Curriculum Proposal –provide to Brandi]

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

1.2 Operational Description

Instructions:

- Describe the operation of the Ph.D. program as it currently exists including the mode of course delivery. Has the current operation changed from that originally proposed in the Program AP-04 proposal? If so, why and has the change been successful?
- As part of the operational description, explain the role of the Ph.D. program faculty with respect to the Ph.D. students and candidates considering, in particular, research mentoring, the qualifying exam, coursework expectations, research productivity expectations, and general oversight.

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

1.3 Ph.D. University Academic Policies (APDs)

Instructions:

- In (Table 1.3.1) below, the names of the current set of University APDs are listed with links to each policy. Have these current APDs provided adequate guidance and structure for this Ph.D. program?
- Identify any of the APDs that you believe have been problematic for this Ph.D. program and explain why.
- Based on the program's experience to date, are there any changes, modifications or additions to this current set of APDs you believe would enhance your Ph.D. program?

[Table 1.3.1 - built into the Faculty Narrative Section]

→ [Step 1] Faculty Analysis and Report:

**Table 1.3.1
Doctoral Policies**

Evaluation of Policies:

- How have these APD’s provided guidance and structure for this Ph.D. program? (Guidance)
- Explain how the APD has been problematic for this Ph.D. program and explain why. (Problem)
- What changes, modifications or additions to the APD would enhance your Ph.D. program? (Change)

<i>Policy</i>	<i>Evaluation of Policy</i>
<u>APD 01 - Admission to Ph.D. Programs</u>	(Typical) Guidance: Problem: Change:
<u>APD 02 - Schedule of Ph.D Classes</u>	Guidance: Problem: Change:
<u>APD 03 - Ph.D. Course Load Definition</u>	Guidance: Problem: Change:
<u>APD 04 - Credit for Prior Academic Work & for Course taken at other Institution</u>	Guidance: Problem: Change:
<u>APD 05 - Graduation Requirements & Degree Conferral</u>	Guidance: Problem: Change:
<u>APD 06 - Academic Probation & Dismissal</u>	Guidance: Problem: Change:
<u>APD 07 - Grading System, Calculation of the Grade Point Average & Registration</u>	Guidance: Problem: Change:
<u>APD 08 - Ph.D. Catalog Applicability</u>	Guidance: Problem: Change:
<u>APD 09 - Ph.D. Teaching & Research Assistantships</u>	Guidance: Problem: Change:
<u>APD 10 - Qualifying Examination</u>	Guidance: Problem: Change:
<u>APD 11 - Dissertation</u>	Guidance: Problem: Change:
<u>APD 12 - Dissertation Advisory Committee</u>	Guidance: Problem: Change:
<u>APD 13 - Dissertation Oral Committee</u>	Guidance: Problem: Change:

APD 14 - Dissertation Oral Examination	Guidance: Problem: Change:
APD 15 - Loss of Ph.D. Status & Readmission	Guidance: Problem: Change:
APD 16 - Ph.D. Academic Integrity Violations	Guidance: Problem: Change:
APD 17 - Ph.D. Internship Program	Guidance: Problem: Change:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

1.4 Ph.D. SWOT Analysis

Instructions:

- Please conduct a SWOT Analysis of the program, to include your findings from Section I. Reference the "Instructions for SWOT Analysis" [video link](#) for additional guidance. (Contact the Office of Academic Assessment & Accreditation 386-226-7373, or g.samantha.payne@erau.edu for any assistance you might need for these analyses.)

[Attachment 1_4_1_db_phdhf or phdme – Instructions for SWOT Analysis–provide to Brandi]

1.5 Strategic Action items

Instructions:

- After considering the SWOT analysis in this section, now enter Strategic Action Items that 1) continue to support the program’s strengths, 2) address any weaknesses, 3) mitigate any threats, and/or 4) take advantage of any opportunities the program proposes to undertake for purposes of program improvement.
- **YOU MUST** propose a Strategic Action Item for any identified weaknesses or threats.
- Prioritize each of the Construct I- Program Mission & Context Strategic Action Items.
 - Low** –“To-Do” action items to be implement in the future by the program, without urgency, and that do not require a higher level of approval.
 - Medium** – Action items that may require Dean and departmental budget review to be implemented within the college, and do not require University Administration review or other budget approval.
 - High** – Action items that have an “urgent” requirement to implement and/or require higher-level budget review and University Administration approval.
- Identify any Strategic Action items that also align with the ERAU University Mission Strategic Goals
 - Goal #1** – *Develop an enrollment vision and an associated management plan that supports ERAU’s unique identity and mission.*

Goal #2 – Create lifetime success - through a holistic approach to student development and success that transforms the student experience.

Goal #3 – Achieve international recognition as the leading aeronautical university through strategic global engagement with business and academia.

Goal #4 – Known internationally for groundbreaking aerospace/aviation research and innovation in select, signature areas, and for discovery-driven undergraduate programs.

Goal #5 - Establish a culture of philanthropy, rooted in lifelong relationships with alumni, friends, corporations, and foundations, that supports ERAU’s advancement and aligns with the goals of its Strategic Plan.

II. Ph.D. Program Faculty

In Section II, we examine credentials of faculty participating in the PhD program by teaching, mentoring, or serving on dissertation committees; faculty scholarly activities and productivity; and the balance of workload requirements in the department for teaching, research and service.

2.1 Faculty Credentials and Ph.D. Program Participation

Instructions:

- The PhD program faculty are listed below (Table 2.1.1). Describe what credentials are required for faculty to be selected and approved for teaching and mentoring.
- What are the criteria for selecting individuals to serve on dissertation committees (including the final dissertation defense committee)?
- With regard to the credentialing of Ph.D. program faculty, have there been any issues or concerns that have arisen over the past five years that have necessitated a change in that process? If so, please describe the issue and the remediation.
- Do Ph.D. program faculty also teach non-Ph.D.-level courses? Have there been any issues that have arisen between faculty teaching Ph.D. courses and faculty teaching non-Ph.D. courses?
- How has the research “tenor” of the Department/College been affected by the presence of the Ph.D. program and, if so, in what ways?

[Table 2.1.1 – built into the Faculty Narrative Section; Requested Deliverables from the Program Coordinator/Chair]

Table 2.1.1

Program Faculty Service to Program and Scholarship

Please list all faculty engaged in the program through Teaching, Dissertation Committee, and Advising (Chair).

Name	CV	Service T=Teaching, D=Dissertation, A= Advising	Scholarship					
			Documents	H- Index	Citations	ERAU in Past 5 Yrs		
						Journals	Publications	Books

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

2.2 Scholarly Expectations of Faculty

Instructions:

- Since the academic reputation of the Ph.D. program, the department, and the University is strongly dependent upon the quality and quantity of faculty scholarship, as well as the scholarship of its graduates, specifically describe the scholarship expectations for the department faculty related to this program. Describe specifically how they are evaluated, encouraged, and supported. Explain the ramifications if a faculty member's level of scholarship does not rise to the department's expectations for participation in this program.
- How are these Ph.D. program expectations communicated to faculty as they join the program?
- Using the CVs provided for each program faculty member, comment on the level of scholarship detailed in each of these CVs relative to the expectations of the department and program as described above.

[Table 2.2.1 – built into the Faculty Narrative Section; Requested Deliverables from the Program Coordinator/Chair]

[Attachment 2_2_2_db_cvs - Requested Deliverables to be provided by Program Coordinator/Chair; provide to Brandi]

**Table 2.2.1
Program Faculty Scholarship**

Please comment on the individual’s level of scholarship compared to the program’s expectations.

Name of Ph.D. Faculty	CV	Level of Scholarship Compared to Program’s Expectations

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

2.3 Department Workload Requirements for Teaching, Research and Service

In the past, the primary component of most faculty effort was the teaching commitment. As the University increases the emphasis on research, expectations of the faculty must reflect a broadening emphasis of faculty effort (e.g., research expectations).

Instructions:

- Discuss how the shifting balance of faculty workload effort toward research for Ph.D. program faculty has been addressed in the department.
- What are the criteria used to assign a reduced teaching effort for Ph.D. program faculty and how is performance monitored to justify the reduction in teaching load for the BS and MS programs?
- Explain how the increased academic responsibilities of faculty associated with Ph.D. programs such as proposal preparation, candidate mentoring, dissertation committee participation, scholarly paper preparation, research effort, etc., are incorporated into the existing department culture as it matures to a Ph.D.-level research-focused entity. How is this “research culture” balanced with the predominant “teaching culture” that previously existed?
- Explain how faculty in the Ph.D. program are encouraged to obtain external funding to support their research efforts and to support their Ph.D. candidates? What are the ramifications if faculty fail to obtain external research funding to adequately support their research and the candidates?

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

2.4 Ph.D. SWOT Analysis

Instructions:

- Please conduct a SWOT Analysis of the program, to include your findings from Section II. Reference the "Instructions for SWOT Analysis" [video link](#) for additional guidance. (Contact the Office of Academic Assessment & Accreditation 386-226-7373, or g.samantha.payne@erau.edu for any assistance you might need for these analyses.)

[Attachment 2_4_1_db_phdhf or phdme – Instructions for SWOT Analysis–provide to Brandi]

2.5 Strategic Action items

Instructions:

- After considering the SWOT analysis in this section, now enter Strategic Action Items that 1) continue to support the program’s strengths, 2) address any weaknesses, 3) mitigate any threats, and/or 4) take advantage of any opportunities the program proposes to undertake for purposes of program improvement.
- **YOU MUST** propose a Strategic Action Item for any identified weaknesses or threats.
- Prioritize each of the Construct II- Program Faculty Strategic Action Items.
Low –“To-Do” action items to be implement in the future by the program, without urgency, and that do not require a higher level of approval.
Medium – Action items that may require Dean and departmental budget review to be implemented within the college, and do not require University Administration review or other budget approval.
High – Action items that have an “urgent” requirement to implement and/or require higher-level budget review and University Administration approval.
- Identify any Strategic Action items that also align with the ERAU University Mission Strategic Goals
Goal #1 – *Develop an enrollment vision and an associated management plan that supports ERAU’s unique identity and mission.*
Goal #2 – *Create lifetime success - through a holistic approach to student development and success that transforms the student experience.*
Goal #3 – *Achieve international recognition as the leading aeronautical university through strategic global engagement with business and academia.*
Goal #4 – *Known internationally for groundbreaking aerospace/aviation research and innovation in select, signature areas, and for discovery-driven undergraduate programs.*
Goal #5 - *Establish a culture of philanthropy, rooted in lifelong relationships with alumni, friends, corporations, and foundations, that supports ERAU’s advancement and aligns with the goals of its Strategic Plan.*

III. Progress of Students

In this section you will review Ph.D. student admission/enrollment processes and statistics, MS vs BS admits, performance and completion statistics, Ph.D. degrees awarded, sources of support – internal vs external, and mentor/candidate assignment for the previous five years. If a particular topic or question is not applicable to this Ph.D. Program, indicate with N/A.

3.1 Ph.D. Program Student Recruitment and Performance

Instructions:

- Describe the student recruitment and admission process for domestic and international applicants. Tabulate the number of international and domestic students admitted to the Ph.D. program each year, over the past five years (Table 3.1.1). Compare the trends with those projected in the original AP-04 proposal (Attachment 1.1.1).
- What are the threshold requirements for admission into the Ph.D. program and do they differ for domestic and international applicants? Have these requirements changed or evolved over the past five years? If so, why?
- What are the average GPA and GRE/GMAT scores for the incoming classes each year over the past 5 years (Table 3.1.2)? Is there a trend to these data and, if so, what does that suggest?
- If the Ph.D. program admits students holding only a bachelor's degree, explain how the admission criteria differ from those holding a master's degree. Has extending admission to bachelor's degree applicants been satisfactory? Are there plans to continue allowing undergraduates to be accepted into the program?
- Does the curriculum for BS admits differ from that for MS admits in preparation for taking the Qualifying Examination? Based on the experience to date, is there any difference in performance between the BS and MS admits when they take the Qualifying Exam?
- What happens if a Ph.D. candidate fails the Qualifying Examination on both the first and second attempt? If dismissed from the Ph.D. program, describe how the student can still attain the MS degree?
- On the attached form (Table 3.1.3), list the name, title of dissertation, name of advisor, and date of the awarding of the Ph.D. degree for each Ph.D. program graduate.

[Table 3.1.1 - built into the Faculty Narrative Section]

[Table 3.1.2 - built into the Faculty Narrative Section]

[Table 3.1.3 - built into the Faculty Narrative Section]

**Table 3.1.1
Applications and Enrollments**

(Projected)

Student Admissions and Enrollment Status	'14-'15	'15-'16	'16-'17	'17-'18	'18-'19	'19-'20
# International Applicants						
# Applied						
# Admitted						
# Enrolled						
Acceptance Rate						
# Domestic Applicants						
# Applied						
# Admitted						
# Enrolled						
Acceptance Rate						
Grand Totals						
Total # PhD Candidates						
Total Enrolled (Students and Candidates)						
2009 A-04 Projected Enrollment						
Total # MS Degrees Awarded to PhD Students						
Total # PhD degrees awarded						

**Table 3.1.2
GPA and Entry Exam Scores**

Please "*" candidates who were admitted as undergrads to the PhD program.

Student	Date Enrolled	Undergrad GPA	Grad GPA	Entry Exam Name:	Qualitative	Quantitative	Entry Exam Score (out of ??)
Example: Student #1	F13	3.51	3.77	GRE Quantitative			160
Summary							
Total 1 st Yr							
Avg 1 st Yr							
Total 2 nd Yr							

Avg 2 nd Yr							
Total 3 rd Yr							
Avg 3 rd Yr							
Total 4 th Yr							
Avg 4 th Yr							
Total 5 th Yr							
Avg 5 th Yr							
Grand Total							
Grand Avg							

**Table 3.1.3
PhD Graduates' Dissertations/Advisement**

For each PhD. Graduate provide his/her name, title of dissertation, advisor and date dissertation was accepted.

<i>Name</i>	Title of dissertation	Name of Advisor	Date Dissertation Accepted

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

3.2 Ph.D. Candidate Faculty Mentor

Instructions:

- Describe how admitted Ph.D. students are matched to a research advisor. What determines whether a Ph.D. program faculty is assigned a mentor? Does the faculty being able to provide stipend support for the candidate enter into the decision?
- Detail the funding history for the support of each of the program’s Ph.D. students and candidates. Break down the internal (University) support (stipend and tuition) and the external support (**Table 3.2.1**). Ph.D. program faculty are expected to support (stipend and/or tuition) their Ph.D. candidate advisees following successful completion of the Qualifying Examination. How well is this expectation being met?
- List the five year history for all Ph.D. program faculty advising Ph.D. candidates and document the funding support for their advisees (**Table 3.2.2**). If not all Ph.D. program faculty are supporting their Ph.D. candidate advisees to date, explain when this is expected to happen.
- How do you handle a situation in which the candidate has a conflict with the research advisor?
- What factors contribute to lengthening the time to degree (progress) through the Ph.D. program? How can these factors be eliminated or, at least, mitigated?

[Table 3.2.1 - built into the Faculty Narrative Section; Requested Deliverables from the Program Coordinator/Chair]

Table 3.2.1

Source of Funding Support for Ph.D. Candidates

Provide a break down for the current academic year of the internal (University) support (stipend and tuition) and the external support (grants, etc.).

<i>Student</i>	<i>GTA (%)</i>	<i>Stipend by ERAU? (Y/N)</i>	<i>GRA (%)</i>	<i>Stipend by External Grant? (Y/N)</i>	<i>Name of Faculty Associated with the External Grant</i>	<i>* Other Support?</i>	<i>If Employer Supported, Name of Employer or Industry</i>	<i>Name of Research Advisor</i>

[Table 3.2.2 (original) - built into the Faculty Narrative Section; Requested Deliverables from the Program Coordinator/Chair; information provided by Nan Guzman, Director, Grants and Contracts Administration] [Will be provided to Brandi as 3_2_2_db_phdhf or phdme]

**Table 3.2.2
PhD Program Faculty Research Expenditures**

List the faculty in the PhD program, then for each provide the research expenditures for the past 5 years, projected expenses for the current year ('19-'20), number of Teaching Assistants (TA's) and Research Assistants (RA's) supported each year, total number of PhD students each year, and the ratio of RA's to TA's.

Faculty	Research Expenditures (Expense) AY '15-'16	Research Expense AY '16-'17	Research Expense AY '17-'18	Research Expense AY '18-'19	Research Expense AY '19-'20 (Projected)	How many students are supported through Grants?
Total						
TA						
RA						
Total PhD Student						
Ratio: RA/TA						

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

3.3 Ph.D. SWOT Analysis

Instructions:

- Please conduct a SWOT Analysis of the program, to include your findings from Section II. Reference the "Instructions for SWOT Analysis" [video link](#) for additional guidance. (Contact the Office of Academic Assessment & Accreditation 386-226-7373, or g.samantha.payne@erau.edu for any assistance you might need for these analyses.)

[Attachment 3_3_1_db_phdhf or phdme – Instructions for SWOT Analysis–provide to Brandi]

3.4 Strategic Action items

Instructions:

- After considering the SWOT analysis in this section, now enter Strategic Action Items that 1) continue to support the program's strengths, 2) address any weaknesses, 3) mitigate any threats, and/or 4) take advantage of any opportunities the program proposes to undertake for purposes of program improvement.
- **YOU MUST** propose a Strategic Action Item for any identified weaknesses or threats.
- Prioritize each of the Construct III- Ph.D. Progress of Students Strategic Action Items.

Low –“To-Do” action items to be implement in the future by the program, without urgency, and that do not require a higher level of approval.

Medium – Action items that may require Dean and departmental budget review to be implemented within the college, and do not require University Administration review or other budget approval.

High – Action items that have an “urgent” requirement to implement and/or require higher-level budget review and University Administration approval.

- Identify any Strategic Action items that also align with the ERAU University Mission Strategic Goals

Goal #1 – *Develop an enrollment vision and an associated management plan that supports ERAU's unique identity and mission.*

Goal #2 – *Create lifetime success - through a holistic approach to student development and success that transforms the student experience.*

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Goal #5 - *Establish a culture of philanthropy, rooted in lifelong relationships with alumni, friends, corporations, and foundations, that supports ERAU's advancement and aligns with the goals of its Strategic Plan.*

IV. Ph.D. Program Research

In this Section you will review Ph.D. program research areas (established, new and signature areas), extramural funding, research expenditures, faculty research productivity, research impact, program productivity, and Involvement in Organized Research Units (ORUs). If a particular topic or question is not applicable to this Ph.D. Program, indicate with N/A.

4.1 Research Areas

Instructions:

- What are considered the “signature” areas of research focus associated with this program? List the Ph.D. program faculty associated with each “signature” area of research. **Illustrate how research funding has grown or declined in these signature areas over the past 5 years.**
- Did these research areas exist prior to the Ph.D program or are they newly developed? Have any of them grown out of strategic hires of particular Ph.D program faculty? If so, which ones?
- **Illustrate how research funding has grown or declined in these signature areas over the past 5 years.**
- In Section III, (Table 3.2.2) above, the research expenditures for each of the Ph.D. program faculty are listed by fiscal year. Comment, as appropriate, on the growth (or lack thereof) of each faculty member’s level of external support and the ongoing plans to increase those levels of research expenditures.
- The attached University Strategic Plan establishes the goal of the University to increase research expenditures by FY2025, how will this program contribute to that goal?

[Attachment 3_2_2_db_phdhf or phdme - PhD Program Faculty Research Expenditures – Provide to Brandi]

[Attachment 4_1_1_db_phdhf or phdme – Strategic Plan; 4_1_2_db_phdhe or phdme - Research Goal-strategy-timeline]

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

4.2 Research Productivity and Impact

In Section II., Faculty Scholarly Expectations, you reviewed the program faculty CVs and commented on the level of scholarship described in each as relative to the expectations of the Ph.D. program.

Instructions:

- For this Section IV determine the level of research necessary for this program to achieve the goals of the University Strategic Plan. Describe how the program's research activity, expenditures, and scholarly productivity must be adjusted to achieve the goals set by the University.
- To increase the external impact of the Ph.D. program, describe the increase necessary in faculty involvement in national and international scholarly activities. This will include participations in government and industry review boards, editorial responsibilities, proposal and paper reviews, referee responsibilities, and invited

participation in presentations, papers, boards, and other areas. It will also include professional recognitions like fellows, awards, honorary memberships, national and international scholarly activities.

- Describe plans to stimulate the “innovation and entrepreneurial” culture amongst the Ph.D. program faculty and their advisees. Also describe how the University can help in those endeavors.

[Attachment 3_2_2_db_phdhf or phdme - PhD Program Faculty Research Expenditures – Provide to Brandi]

→ [Step 1] Faculty Analysis and Report:

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4.3 Program's Involvement in ORUs

Organized Research Units (ORUs, e.g., Centers and Institutes) across the University are effective ways to leverage the combined strengths of a number of faculty and research staff, and to focus research resources in strategically important areas of University research activity.

Instructions:

- To describe how the Ph.D. program faculty are involved with any of the existing University Organized Research Units, list the ORU, the faculty who are currently involved, then describe that involvement (e.g., joint appointments, Ph.D. Research Staff involvement, etc.)
- How does involvement help to strengthen the research efforts and productivity of the Ph.D. program?
- How can the relationships be strengthened or improved to further grow the research activity in the Ph.D. program?

Table 4.3.1

Involvement in Organized Research Units (ORUs)

List the Organized Research Unit (ORU), the faculty who are currently involved, then describe that involvement (e.g., joint appointments, Ph.D. Research Staff involvement, etc.)

<i>ORU</i>	<i>Ph.D. Program Faculty Involved</i>	<i>Description of Involvement</i>

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

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4.4 Ph.D. SWOT Analysis

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4.5 Strategic Action items

Instructions:

- After considering the SWOT analysis in this section, now enter Strategic Action Items that 1) continue to support the program’s strengths, 2) address any weaknesses, 3) mitigate any threats, and/or 4) take advantage of any opportunities the program proposes to undertake for purposes of program improvement.
- **YOU MUST** propose a Strategic Action Item for any identified weaknesses or threats.
- Prioritize each of the Construct IV - Ph.D. Program Research Strategic Action Items.
Low –“To-Do” action items to be implement in the future by the program, without urgency, and that do not require a higher level of approval.
Medium – Action items that may require Dean and departmental budget review to be implemented within the college, and do not require University Administration review or other budget approval.
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Goal #5 - Establish a culture of philanthropy, rooted in lifelong relationships with alumni, friends, corporations, and foundations, that supports ERAU’s advancement and aligns with the goals of its Strategic Plan.

V. Ph.D. Program Recognition

In this section, we review the external reputation of the Ph.D. program in the academic and professional communities, the program's recognition as reflected in increasing quality of incoming students and in new faculty hires, the hiring of distinguished faculty, student awards and recognitions, visiting faculty requests, and non-faculty research personnel. If a particular topic or question is not applicable to this Ph.D. program, indicate with N/A

5.1 External Reputation and Recognition

In preparation for this Ph.D. program review the University has requested evaluations from external reviewers in the academy and/or industry. The external reviewer’s statements are attached for your review.

Instructions:

- Discuss the comments provided by each of the external reviewers and provide an overall assessment of the perceived quality of the Ph.D. program. If there are suggestions or recommendations for the Ph.D. program, discuss how they can be addressed.
- External recognition is reflected in the quality of students accepted into the Ph.D. program. Do the Ph.D. program faculty believe there is an increase in the quality of students coming into the program? If so, describe the basis for this belief; if not, why?
- External recognition is also reflected in the quality of newly hired faculty (e.g., source Ph.D. institutions, their Ph.D. advisors, existing research support, Distinguished Faculty hires, etc.). Detail the hiring of new Ph.D. program faculty over the past five years and the impact these hires have had on the Ph.D. program, especially in terms of research.
- The increase in postdoctoral applications, visiting distinguished faculty requests, sabbatical visit requests, and invitations for external collaborations at other universities or industries are also measures of program recognition. Describe how these are occurring and how are they increasing or decreasing in number?

[Attachment 5_1_1-3_db_phdhf or phdme – External Reviewer Response – Provide to Brandi]

Table 5.1.4

Response to External Review of Program

List the Organized Research Unit (ORU), the faculty who are currently involved, then describe that involvement (e.g., joint appointments, Ph.D. Research Staff involvement, etc.)

<i>External Reviewer</i>	<i>Discussion of overall assessment</i>	<i>Recommendation</i>	<i>How Recommendation can be addressed</i>

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

5.2 Ph.D. Program Faculty and Student Awards and Other Recognitions

Instructions:

- Use (Table 5.2.1) to provide details of the Ph.D. program faculty awards, honors, recognitions that they have earned over the past five years. Specifically, include fellowships, academy memberships and/or nominations, and national-level recognitions.
- Use (Table 5.2.2) to detail Ph.D. program candidates'/graduates' awards, scholarships, honors and recognitions that have been earned over the past five years, then discuss the impact on the program and on the university of these student recognitions.

[Table 5.2.1 - Evaluation of Ph.D. Faculty’s Recognitions - PhD Program Faculties’ Recognitions – OAA will built into faculty narrative box; information provided by program coordinator/chair]

Table 5.2.1

Ph.D. Faculty Recognitions

Provide details of the Ph.D. program faculty awards, honors, recognitions that they have earned over the past five years. Specifically, include fellowships, academy memberships and/or nominations, and national-level recognitions.

<i>Faculty</i>	<i>Awards</i>	<i>Honors</i>	<i>Recognitions</i>	<i>Fellowship</i>	<i>Academy Membership</i>	<i>Academy Nominations</i>	<i>National Recognitions</i>

[Table 5.2.2 - built into the Faculty Narrative Section]

Table 5.2.2
Evaluation of Ph.D. Candidate/Graduate Recognitions

Provide details of Ph.D. program candidates'/graduates' awards, scholarships, honors and recognitions that they have earned over the past five years

<i>Candidate/Graduate</i>	<i>Awards</i>	<i>Scholarships</i>	<i>Honors</i>	<i>Recognitions</i>

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

5.3 Placement of Ph.D. Program Graduates

The placement of the Ph.D. graduates and their impact on their place of employment also measures external recognition of the Ph.D. program quality.

Instructions:

- Table 5.3.1 List the Ph.D. graduates of the Program, their current place of employment, their title, and, if possible, a high level description of their position responsibilities.
- Describe how the Ph.D. has enhanced the graduate’s position within the industry and/or the academy, and how their earning of the Ph.D. made a difference with respect to their employment.

[Table 5.3.1 - built into the Faculty Narrative Section]

Table 5.3.1
Ph.D. Program Graduate Achievement

List the Ph.D. graduates of the program over the last 5 years, their current place of employment, title, and a high-level description of their position responsibilities. Also describe how the degree has enhanced the graduate’s position within the industry or the academy and how earning the Ph.D. has made a difference with respect to their employment.

<i>Name of PhD Graduate</i>	<i>Faculty Advisor</i>	<i>Current Employment</i>	<i>Position Title</i>	<i>How has degree enhanced current position?</i>	<i>What impact has degree made on employment?</i>

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

5.4 Ph.D. SWOT Analysis

Instructions:

- Please conduct a SWOT Analysis of the program, to include your findings from Section V. Reference the "Instructions for SWOT Analysis" [video link](#) for additional guidance. (Contact the Office of Academic Assessment & Accreditation 386-226-7373, or g.samantha.payne@erau.edu for any assistance you might need for these analyses.)

[Attachment 5_4_1_db_phdhf or phdme – Instructions for SWOT Analysis–provide to Brandi]

5.5 Strategic Action items

Instructions:

- After considering the SWOT analysis in this section, now enter Strategic Action Items that 1) continue to support the program’s strengths, 2) address any weaknesses, 3) mitigate any threats, and/or 4) take advantage of any opportunities the program proposes to undertake for purposes of program improvement.
- **YOU MUST** propose a Strategic Action Item for any identified weaknesses or threats.
- Prioritize each of the Construct V - Ph.D. Program Recognition Strategic Action Items.
 - Low** –“To-Do” action items to be implement in the future by the program, without urgency, and that do not require a higher level of approval.
 - Medium** – Action items that may require Dean and departmental budget review to be implemented within the college, and do not require University Administration review or other budget approval.
 - High** – Action items that have an “urgent” requirement to implement and/or require higher-level budget review and University Administration approval.
- Identify any Strategic Action items that also align with the ERAU University Mission Strategic Goals
 - Goal #1** – Develop an enrollment vision and an associated management plan that supports ERAU’s unique identity and mission.
 - Goal #2** – Create lifetime success - through a holistic approach to student development and success that transforms the student experience.
 - Goal #3** – Achieve international recognition as the leading aeronautical university through strategic global engagement with business and academia.
 - Goal #4** – Known internationally for groundbreaking aerospace/aviation research and innovation in select, signature areas, and for discovery-driven undergraduate programs.
 - Goal #5** - Establish a culture of philanthropy, rooted in lifelong relationships with alumni, friends, corporations, and foundations, that supports ERAU’s advancement and aligns with the goals of its Strategic Plan.

VI. Ph.D. Program Budget Review

In this Section, we review the five-year Ph.D. program expense/revenue financials, comparing them with the budget proposed in the original AP-04 document; external funding for research support; the projected five-year budget; and suggestions for key areas of need for support to facilitate growth or improvement. If a particular topic or question is not applicable to this Ph.D. Program, indicate with N/A.

6.1 Ph.D. Program Financials

Ph.D. programs typically do not generate significant revenue; they serve a different, important purpose to enhance the University's academic reputation which can contribute to overall revenue growth. Since operating successful Ph.D. programs requires the commitment of significant institutional resources, it is important to be able to predict expenses and revenues, and to efficiently use those resources to the best advantage

Instructions:

- Provided is the budget proposed for this program in the original AP-04, Attachment 1.1.1. Please provide the year over year financial history of the program for the last five years, then complete Table 6.1.1 to compare the proposed budget expenses/revenues with the actual expenses/revenues and comment on differences that exist.

**[Attachment 1_1_1_db_phdhf or phdme – PhD Program AP-04 Curriculum Proposal –provide to Brandi]
[Table 6.1.1- built into the Faculty Narrative Section]**

Table 6.1.1

Revenues and Expenses – Projected vs. Actuals

Provide the year over year financial history of the program for the last five years, then compare the proposed budget expenses/revenues with the actual expenses/revenues.

	<i>FY14</i>	<i>FY15</i>	<i>FY16</i>	<i>FY17</i>	<i>FY18</i>	<i>FY19 (projected)</i>
<i>Projected Revenue</i>						
<i>Actual Revenues</i>						
<i>Projected Expenses</i>						
<i>Actual Expenses</i>						

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

6.2 Ph.D. Program Current External Research Support

An essential part of any Ph.D. program is the expectation that the faculty will fund their research efforts through external research support. As applicable, this includes the support (stipend and/or tuition) of the Ph.D. candidates who are working on research. Such external support gives flexibility and freedom to the Ph.D. program faculty member and allows the candidate to dedicate all their efforts to their dissertation research.

(Table 3.2.2) provides the history of external funding history for each of the program faculty along with their research expenditures for the last five years. The Original AP-04 for the program is attached. Utilizing Section 4 "Plan" of the AP-04, discuss the status of the plan for external funding to provide significant support for the program

after the program as the program matures.

Instructions:

- Discuss the externally-funded research data in terms of trends for the individual program faculty. Comment on variations of research funding support across these faculty.
- What are the current expectations for the program faculty to obtain external funds to support their research efforts? What is being done to increase the level of external funding across all the program faculty? How has the department, the college, and/or the University supported these efforts?
- If the Ph.D. program has used postdoctoral researchers over the past five years, how has each been financially supported?
-

[Attachment 1_1_1_db_phdhf or phdme – PhD Program AP-04 Curriculum Proposal –provide to Brandi]

[Attachment 3_2_2_db_phdhf or phdme - PhD Program Faculty Research Expenditures – Provide to Brandi]

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

6.3 Ph.D. Program Financials into the Future

The previous five years have provided a background understanding of the cost/benefit associated with operating this Ph.D. program. Looking forward to the next five years, it is important to project as accurately as possible what the operating costs and the revenue will be, to help the University plan its overall budgets, and to help manage the program more efficiently.

Instructions:

- Taking into account current program enrollment goals, the expectations of the Ph.D. program faculty to generate external funding including support for Ph.D. candidates, and based upon the current financial state of this program, use (Table 6.3.1) to project year-over-year program financials for the next 5 years.

[Table 6.3.1 excel - built into the Faculty Narrative Section]

Table 6.3.1

Projected Program Financials Next 5 Years

Provide the year over year financial projections for the program for the next five years.

	<i>FY20/21</i>	<i>FY21/22</i>	<i>FY22/23</i>	<i>FY23/24</i>	<i>FY24/25</i>	<i>Grand Total</i>
New Faculty						
Student Stipend						
Benefits						
Computer						
Labs						
Total Proposed Expense						

TA						
RA						
RA%						

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

6.4 Ph.D. SWOT Analysis

Instructions:

- Please conduct a SWOT Analysis of the program, to include your findings from Section VI. Reference the "Instructions for SWOT Analysis" [video link](#) for additional guidance. (Contact the Office of Academic Assessment & Accreditation 386-226-7373, or g.samantha.payne@erau.edu for any assistance you might need for these analyses.)

[Attachment 6_4_1_db_phdhf or phdme – Instructions for SWOT Analysis–provide to Brandi]

6.5 Strategic Action items

Instructions:

- After considering the SWOT analysis in this section, now enter Strategic Action Items that 1) continue to support the program’s strengths, 2) address any weaknesses, 3) mitigate any threats, and/or 4) take advantage of any opportunities the program proposes to undertake for purposes of program improvement.
- **YOU MUST** propose a Strategic Action Item for any identified weaknesses or threats.
- Prioritize each of the Construct VI - Ph.D. Program Budget Review Strategic Action Items.
 - Low** – “To-Do” action items to be implement in the future by the program, without urgency, and that do not require a higher level of approval.
 - Medium** – Action items that may require Dean and departmental budget review to be implemented within the college, and do not require University Administration review or other budget approval.
 - High** – Action items that have an “urgent” requirement to implement and/or require higher-level budget review and University Administration approval.
- Identify any Strategic Action items that also align with the ERAU University Mission Strategic Goals
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 - Goal #4** – Known internationally for groundbreaking aerospace/aviation research and innovation in select, signature areas, and for discovery-driven undergraduate programs.
 - Goal #5** - Establish a culture of philanthropy, rooted in lifelong relationships with alumni,

friends, corporations, and foundations, that supports ERAU’s advancement and aligns with the goals of its Strategic Plan.

VII. Ph.D. Program Vision for the Future

In this Section we ask the Ph.D. program leaders to project a vision for the state of the program five years from now. In particular consider the program size, such as program faculty, candidates, and staff, primary research directions, involvement with University Organized Research Units, level of external funding, levels of support for Ph.D. candidates, and other significant factors.

7.1 Projections of the Ph.D. Program for the next 5-year timeframe

Instructions:

- What is the Department’s vision for the size of the Ph.D. program with respect to faculty and graduate students/candidates?
- What are anticipated to be the primary research directions of the program? Will they be the same or similar to those existing now or are they expected to broaden or develop new directions?
- How are collaborations with other Ph.D. programs within the University and/or with other Universities or industries envisioned? How will the program engage with existing University Organized Research Units (ORUs)? Describe the possibility of a new ORU, its focus and scope.
- What will be the average, annual number of Ph.Ds. graduating from the Ph.D. program at that time?

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

7.2 Projected Level of external research support in the next 5-year timeframe

Instructions:

- What does the Ph.D. program expect in terms of external research support per faculty member? What are the anticipated research expenditures per faculty member?
- Do you anticipate that the sources of external support will continue to be industry contracts and/or Government agencies (e.g., NSF, DOD, NASA, etc.) or is a shift in support area anticipated? And, if so, to where?
- Does the Ph.D. program plan to utilize more non-faculty Ph.D. research staff (postdoctoral researchers, Ph.D. – level research staff, etc.) and what are the plans to generate support to fund these individuals?
- Does the Ph.D. program have any plans or recommendations to help in covering the cost of tuition scholarships for Ph.D. graduate students?

→ [Step 1] Faculty Analysis and Report:

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

7.3 Critical Targets for Enhancing This Program

Considering the vision (goals) expressed above for the Ph.D. program as it moves forward:

Instructions:

- What are seen as the critical needs to achieve the vision (goals) outlined above? Consider here both fiscal and physical resources that would help the Ph.D. program achieve that vision.
- What are seen as the key challenges needed to be met in order to achieve the vision (goals) outlined above?
- To better help define and lay a path toward achieving that vision, project target metrics and milestones for the Ph.D. program as it moves forward.

[Table 7.3.1 - built into the Faculty Narrative Section]

Table 7.3.1

5th Year Metrics and Milestones for the Program

Provide the year over year financial history of the program for the last five years, then compare the proposed budget expenses/revenues with the actual expenses/revenues.

	<i>SP 2019 (FY19)</i>	<i>Fall 2024 (FY23)</i>	<i>% Growth</i>
Number of PhD Program Faculty			
Enrollment			
Admission per year			
TA support			
RA support			
Average Research Expenditure per faculty per year			
Total Research Expenditure			
Graduate per year			

• **Step 1] Faculty Analysis and Report:**

→ [Step 2] PRC Recommendation:

→ [Step 3] Faculty Response to Recommendations:

7.4 Ph.D. SWOT Analysis

Instructions:

- Please conduct a SWOT Analysis of the program, to include your findings from Section VII. Reference the "Instructions for SWOT Analysis" [video link](#) for additional guidance. (Contact the Office of Academic Assessment & Accreditation 386-226-7373, or g.samantha.payne@erau.edu for any assistance you might need for these analyses.)

[Attachment 7_4_1_db_phdhf or phdme – Instructions for SWOT Analysis–provide to Brandi]

7.5 Strategic Action items

Instructions:

- After considering the SWOT analysis in this section, now enter Strategic Action Items that 1) continue to support the program’s strengths, 2) address any weaknesses, 3) mitigate any threats, and/or 4) take advantage of any opportunities the program proposes to undertake for purposes of program improvement.
- **YOU MUST** propose a Strategic Action Item for any identified weaknesses or threats.
- Prioritize each of the Construct VII - Ph.D. Program Vision for the Future Strategic Action Items.
Low – “To-Do” action items to be implement in the future by the program, without urgency, and that do not require a higher level of approval.
Medium – Action items that may require Dean and departmental budget review to be implemented within the college, and do not require University Administration review or other budget approval.
High – Action items that have an “urgent” requirement to implement and/or require higher-level budget review and University Administration approval.
- Identify any Strategic Action items that also align with the ERAU University Mission Strategic Goals
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Goal #4 – Known internationally for groundbreaking aerospace/aviation research and innovation in select, signature areas, and for discovery-driven undergraduate programs.
Goal #5 - Establish a culture of philanthropy, rooted in lifelong relationships with alumni, friends, corporations, and foundations, that supports ERAU’s advancement and aligns with the goals of its Strategic Plan.

VIII. Cumulative SWOT Analysis and Strategic Action Items

8.1 Ph.D. SWOT Analysis

Instructions:

- Please review the SWOT Analyses of the program, to include your findings from the previous Sections I through VII.

[Attachment 8_1_1_db_phdhf or phdme – Instructions for SWOT Analysis–provide to Brandi]

8.2 Strategic Action items

Instructions:

- After considering the SWOT analyses above, now enter Strategic Action Items in the following table that the program proposes to undertake for purposes of program improvement.