LaSPACE Final Report Guidance

Final Report Introduction
Final Reports are due 30 days after your project’s official end date. The online form is not modifiable after you submit it, so pay attention to the questions and your answers. Incorrect answers will require you to resubmit the entire Final Report. Prepare your responses in advance using this guidance. The final page of the online form gives you an option to "Print PDF" and save a file of your answers for your own records which we encourage. Failure to submit a timely and complete Final Report can result in a loss of eligibility for future funding.

Please note who should be completing this form:

- **LaSSO & LURA** Final Reports are co-written by the faculty mentor & funded student.
- **GSRA** Final Reports are typically written by the funded student with input from the faculty mentor.
- **GIRAF, GPS, & Intern** Final Reports are written by the funded student.
- **All other programs** require Final Reports to be written by the project lead unless otherwise stated in program guidelines. Ultimately any project with subaward & named PI is the responsibility of that PI; any funding issued directly to a student without a PI is the responsibility of the student.

Useful links
- [Online La NASA Space Grant and La NASA EPSCoR Final Report](#)
- Online La NASA Space Grant and La NASA EPSCoR Progress Report ([link forthcoming](#))
  - For Progress Reports, NCE requests, and amendments, utilize the separate online La NASA Space Grant and La NASA EPSCoR Progress Report
- LaSPACE Online Student Demographic Forms
  - Graduate student form
  - Undergraduate student form (high schoolers should use this form)
- [Online NASA Media Release Form](#) for both adults and minors

Project lead and direct-funded student (*if applicable*) info

- **Project Lead**
  - The “project lead” is the PI or faculty/staff lead of the funded project who was identified in your proposal to LaSPACE. Note to students: this is NOT your academic advisor. Some funded projects do not have a subaward and PI, so the project lead/mentor can be identified as follows:
    - **Interns**: this is the assigned mentor where your internship is taking place.
    - **GIRAF**: this is the faculty advisor identified in your application.
    - **GPS**: this is the LaSPACE Assistant Director.
  - You will provide the project lead’s first name, last name, phone number, and email address.
  - When in doubt, contact laspace@lsu.edu for additional guidance.
• Direct-funded Student
  o The “direct-funded student” section is only required if your project is under the GIRAF, GPS, GSRA, Intern, LaSSO, or LURA programs. HIS projects will submit a list of all students later in the report.
  o You will provide the direct-funded student’s first name, last name, phone number, and email address.

Project details
1. Which institution is hosting your project?
   a. Select your primary institution.
      i. For example, if you are participating in the FFP + SURF project and you are originally based at SUBR but perform research at LSU during the summer, you would select SUBR.
   b. If you are a high school student, select the institution where your project is taking place.
      i. For example, if you are a high school student at LSMSA and your project is at Northwestern State University of Louisiana, select NSULA.
2. Is this a La NASA Space Grant project or La NASA EPSCoR project?
   a. Select La NASA Space Grant if your project is GIRAF, GPS, GSRA, HIS, K-12 / Outreach, LaACES, LaSSO, LURA, Internship, REA, RockOn, SAFOS, Senior Design, Other.
      i. If you select “other” for La NASA Space Grant, you must explain why. This is a rare selection for one-off projects that do not fall under an existing program. Double check your award letter & communications with laspace@lsu.edu before selecting this option.
   b. Select La NASA EPSCoR if your project is FFP + SURF, RAP, or TAP.
3. What is the awarded period of performance for this project? (MM/DD/YYYY - MM/DD/YYYY)
   a. This is the period of performance listed in your award letter.
      i. If you had an NCE, put the new, modified end date.
   b. Interns: this is the start & end date of your internship.
4. What is the PO # or GR # assigned to your project?
   a. For non-LSU subaward projects:
      i. List the PO # assigned to your project. It starts with PO-0000.
      ii. This is the "Subaward No." on the 1st page of your subaward contract.
      iii. Do NOT provide us your institution's internal project numbers.
   b. For LSU projects:
      i. List the grant number assigned to your project. It starts with GR-000.
      ii. If you don’t know this number, check with the grant manager in your department.
   c. For GIRAF, GPS, Interns, and other projects not issued via the subaward process:
      i. Write N/A

Project report narrative
1. Describe the funded project for a general audience (150 words or less)
   a. Example from a LaACES project: *University physics and engineering technology students, under the guidance of faculty, completed a year-long Louisiana Aerospace Catalyst*
Experiences for Students (LaACES) project that was funded by the Louisiana Space Grant Consortium. This project culminated in the launch of their instruments by a weather balloon to an altitude of 100,000 ft and subsequent recovery by parachute. In this project, the students learned electronics, programming, project management, and atmospheric sciences. Their experiments to measure the atmospheric pressure, temperature, humidity, and the effect of the atmosphere on the solar spectrum were successful.

2. List the funded goals & objectives (500 words or less)
   a. **Example from a LURA project:** #1: Learn basic organic synthesis and purification, coordination chemistry and characterization. During this project I prepared terpyridine ligands, prepared beta-diketonate lanthanide complexes and characterized using IR, NMR and XRD (powder). I was also able to assist with some UV-Vis data collection. Also, I was paid (separate funding) for running DSC analysis on polymer samples for a mechanical engineering professor based on my experience running DSC for compounds and polymer samples for this project. #2 Learn more polymer chemistry. I was able to dope my compounds into polymers and cure them into optically clear materials. I found an efficient methodology for sample preparation that requires minimal time but allows for reproducible fabrication of clear plastics. #3 Work on an interdisciplinary project. For this project, I was able to interact and work alongside physicists. I had the opportunity to assist in some preliminary data collection. #4: Improve my communication skills. For this project, I was able to present posters at a conference and I presented lectures on Zoom to graduate students and faculty.

3. Share major accomplishments from this project
   a. Share a list of any awards, conferences, invited presentations, co-authors, patents, etc.
   b. **Example from a GSRA project:** Conferences: Louisiana Academy of Sciences; College of Applied and Natural Sciences Research Symposium. Other accomplishments include student earning postbac spot with the NIH (included hyperlink to LaTech press release).

4. Project Leads/PIs reflect on the DEIA practices you proposed, discovered, and implemented in the execution of this project and your team overall. Share specific details as to how this funded project contributed to DEIA goals.
   a. **Example from a Faculty Research project:** As part of my strategy for recruiting undergraduate students to work on this project, I gave a brief talk about my lab and the research opportunities to student organizations on campus that support students in STEM from underrepresented backgrounds. Specifically, I spoke to student chapters of the Society of Women Engineers (SWE) and the National Society of Black Engineers (NSBE). I encouraged students in the meeting to reach out to me with questions and explained how to apply for my available positions. I ultimately hired a student who was at both meetings and was able to provide partial support for her to attend the annual NSBE meeting held in Kansas this year. Working with student organizations and listening to the needs of my students made me better able to create an atmosphere of belonging and to provide an excellent thinker and worker with an environment where she can thrive.

5. Student Reflection
   a. Student Reflection written for a public audience. Guiding questions below.
i. Start with a short description of the research project appropriate for a general audience (3-5 sentences).

ii. What additional activities did you participate in (outside of the research) during the course of the project, such as conference attendance, paper/poster presentations, networking events, etc.? What hard and soft skills did you learn or hone? What wins did you experience (not just with research)? What growth opportunities or challenges did you overcome? How will this experience influence your professional and academic trajectory? What are your future plans? How will you use your experience moving forward?

iii. Example: Before meeting my mentor and joining his lab, I had no idea that I could pursue a career in medical research. I thought there were only two paths: medical school to become a practicing physician or graduate school to do research. While I’m still planning to apply to med school, I’m very interested in the possibility of a joint MD/PhD with a focus on space medicine. It would be really cool to work to keep astronauts healthy and safe. I also am very excited about how space medicine could actually improve health care on earth for regular people. I would not have fully understood this career path without the opportunity to get paid and work in this lab all year.

b. Unique Benefits to Student(s)

i. Tell us what, if anything, this project provided to you that you would not have received without participating in this project. This could be a specific skill development, experiences, training, financial or personal support, and/or other resources of importance to you. If you do not believe this project made a unique contribution, please enter n/a.

ii. Example: Few engineering sophomores in my school are able to work on a complete project lifecycle. I feel very fortunate to know early on that I can work on a team with people from different backgrounds and fields to produce a fully developed payload ready for flight. I loved troubleshooting with my peers and being challenged, but also encouraged by our instructors. I feel like I will have an edge later when I’m working on my senior design project, regardless of what the topic is.

c. Direct Impact on Student(s)

i. What, if any, impact did participation in this funded project influence your career / educational path? Specifically, have you changed course due to this experience? Been reassured in your choice? Been scared away from your choice? Identified new options? etc.

ii. Example: Before getting to work in this lab with a team of supportive mentors I was concerned that I was not suited to a life in research. I learned that scientists are often well-rounded individuals and that making mistakes is part of the scientific process. I also experienced moments when my creative instincts were put to good use, like when I was asked to create a new lab safety poster. I feel more confident in my career path.

6. Project Lead/PI Reflection

a. Project Lead/PI Reflection written for a public audience.
i. Start with a short description of the research project appropriate for a general audience (3-5 sentences).

ii. Explain how this award directly impacted your work life: pay particular attention to 1) how you grew and/or employed your mentorship skills and 2) how this award supported your own professional development goals. Did you make progress toward a research goal? Perfect a new technique?

iii. Share as appropriate how this award impacted you beyond the two categories listed above.

iv. Will you continue to propose to LaSPACE / La NASA EPSCoR funded programs? If yes, which ones and why. If no, please tell us why.

b. Project Lead/PI Mentorship Achievements

i. What additional activities did your students experience outside of the project like conference/competition attendance, paper/poster presentations, networking events, etc.? What hard and soft skills did your students learn or hone? What growth opportunities or challenges did your students overcome? How do you expect this experience to influence your students’ professional and academic trajectories? Please share direct quotes from supported students.

ii. Example: Students working for me are required to attend weekly lab meetings. After about 2 months, they are expected to contribute by providing short reports on their activities. Advanced undergraduates are invited to work as co-authors on publications of research that they actively contributed to, and all students are expected to participate in at least one professional development activity outside the lab, such as presenting at research symposium on campus and/or presenting at the annual meeting. Julie Smith, a student funded under this award, presented a poster at the prestigious AGU conference held in New Orleans this year; I encourage all students who are ready to begin submitting to national and international conferences.

c. Direct Impact on Project Lead/PI

i. Did this funding make a unique contribution to your professional success? If yes, please share details. If no, enter N/A.

ii. Example: As an early career faculty member, I have limited funding available to support activities in my lab. Without this LaSSO award, I would not have been able to hire an undergraduate student researcher to work 15 hours a week in my lab for the academic year. My student was able to learn valuable skills for her future career, while I secured much needed support for basic experimental tasks.

Project results and dissemination

For each question, you will click or slide the scales to answer each question as it relates to this funded project. If you note any results, please provide all details in the file upload section at the end of the report and in any narrative category sections in this online form.

1. Peer-Reviewed Publications
   a. Number of Peer-Reviewed Publications
      i. Number of Submitted
ii. Number of Pending
iii. Number of Published

b. Author Types for Peer-Reviewed Publications (submitted, pending, or published)
   i. Number of faculty who authored or co-authored a peer-reviewed publication
   ii. Number of post-docs who authored or co-authored a peer-reviewed publication
   iii. Number of staff who authored or co-authored a peer-reviewed publication
   iv. Number of graduate students who authored or co-authored a peer-reviewed publication
   v. Number of undergraduate who authored or co-authored a peer-reviewed publication

2. Other Publications
   a. Number of Other Publications
      i. Number of Submitted
      ii. Number of Pending
      iii. Number of Published
   b. Author Types for Other Publications (submitted, pending, or published)
      i. Number of faculty who authored or co-authored a publication
      ii. Number of post-docs who authored or co-authored a publication
      iii. Number of staff who authored or co-authored a publication
      iv. Number of graduate students who authored or co-authored a publication
      v. Number of undergraduate who authored or co-authored a publication

3. Paper Presentations
   a. Number of Paper Presentations
      i. Number of invited paper presentations
      ii. Number of self-submitted paper presentations
   b. Author Types for Paper Presentations
      i. Number of faculty presenters
      ii. Number of post-doc presenters
      iii. Number of staff presenters
      iv. Number of graduate student presenters
      v. Number of undergraduate presenters

4. Oral Presentations
   a. Number of Paper Presentations
      i. Number of oral presentations
   b. Author Types for Oral Presentations
      i. Number of faculty presenters
      ii. Number of post-doc presenters
      iii. Number of staff presenters
      iv. Number of graduate student presenters
      v. Number of undergraduate presenters

5. Poster Presentations
   a. Number of Poster Presentations
      i. Number of posters presented
   b. Author Types for Oral Presentations
i. Number of faculty presenters
ii. Number of post-doc presenters
iii. Number of staff presenters
iv. Number of graduate student presenters
v. Number of undergraduate presenters

6. Number of awards, honors, certificates, or recognitions received
   a. Number of faculty who received awards, honors, certificates, or recognitions
   b. Number of post-docs who received awards, honors, certificates, or recognitions
   c. Number of staff who received awards, honors, certificates, or recognitions
   d. Number of graduate students who received awards, honors, certificates, or recognitions
   e. Number of undergraduates who received awards, honors, certificates, or recognitions

7. Patent and Technology Transfers
   a. Number of patents, based on research/activities associated with this engagement, that have been granted
   b. Number of technology transfer activities that have resulted from research/activities associated with this activity

Project participants
1. Student Participant List
   a. Include the following for each student in your list:
      i. The student’s full name, classification (undergraduate or graduate), amount of funding received from the LaSPACE award, and number of direct contact hours.
      1. The amount of funding received and contact hours are important for LaSPACE to know if the student was “significantly funded” for our NASA reporting.
      ii. See Appendix B for examples.
   b. For projects with an extensive number of students, if you would prefer to upload a file with a table including the required information, please write "Providing table in file upload section" in your answer to this question. Ensure you upload your file in the required zip file in the next section of the Final Report.
   c. In addition to this list, all student participants must submit an online Student Information Form. We do NOT want copies their personal information sent via email. We will crosscheck your list with the online submissions and follow up as needed.
      i. Access the graduate student form
      ii. Access the undergraduate student form (high schoolers should use this option)
   d. If you had no student participants, write N/A. This is a rare response as most projects have student participants.

2. Confirm that all student participants have completed their online LaSPACE Student Demographic Form.

3. Collaborators List
   a. List of faculty, post doctorates, other agencies or institutions and the reason or purpose of collaboration. Include participant name, title, institution/agency/corporation, and project role/contribution. Write N/A if this doesn’t apply to your project.
   b. Examples of collaborations:
i. Research institution/organization
ii. NASA Center
iii. Industry
iv. Other Federal agency
v. Other Jurisdiction agency
vi. Other academic institution
c. See Appendix B for examples.

4. K-12 / Outreach Participants
   a. Include a breakdown of participant numbers by the groups listed below. Write N/A if this doesn’t apply to your project.
      i. **Student Learners** (elementary, middle, high school, undergraduate, graduate, post doc).
         1. We only want school level breakdowns for school/classroom-based events OR events limiting participation to a specific grade level. Otherwise, if it was a general public event, you will count any school-age children attendees as “members of the general public.”
      ii. **Educator Learners** (elementary, middle, high school teachers; higher ed. faculty, administrators, informal educators, pre-service educators)
      iii. **Members of the general public**
   b. If you would prefer to upload a file with tables including these numbers, please write "Providing table in file upload section" in your answer to this question. Ensure you upload your file in the required zip file in the next section of the Final Report.
   c. **Examples:**
      i. **Example A**: 29 middle school students; 2 middle school educators; 0 members of the general public attended the Rock Your World program for 7th grade students
      ii. **Example B**: 300 members of the general public attended the 2024 Annual Solar Eclipse Community Event organized by LSU Shreveport
      iii. **Example C**: Providing table in file upload section
         1. See Appendix B for a table example.

**Photo/media and file uploads**

This section is for photo/media uploads, file uploads (details for captions, results/dissemination, and Student Participant Lists), and confirmation of NASA Media Release Form submissions.

Providing LaSPACE with photos is vital to show our state representatives and NASA leadership visual evidence of the benefits brought to Louisiana via the La NASA Space Grant and NASA EPSCoR Programs. It allows LaSPACE management to highlight funded work on our social media platforms, write local press releases, and compile information for NASA reports.

- NASA Media Release Forms are required for all identifiable individuals in submitted materials. LaSPACE has made the forms available in an online submission format [click here for link](https://www.laspace.org/media-release-form). You are required to confirm that all identifiable individuals, both adults and minors, have completed a form.
- Final reports require the submission of a zip file containing at least 2 photos and a Word document with comprehensive captions.
a. This Word document should also contain A) details for any results you included in the Project Results and Dissemination section and B) a Student Participant List if you did not include that information in the previous section.
b. We encourage the submission of additional photos, especially for projects with numerous students. Figures may also be uploaded.
c. The minimum response must be uploaded in a zip file. The upload limit is 100MB.
   • You are welcome to upload additional photos, video clips, poster files, and other related materials in zip files in the two "Optional Upload Spaces" if needed for additional materials.

1. Confirm submission of online NASA Media Release Forms
2. Submit required minimum upload in a zip file.
   a. For your zip file folder:
      i. Name the folder as follows: Institution - Program Name - Project Lead Name - Student Name (if applicable) - Final Report Upload Materials
         1. Only include the student name if the project is Intern, LaSSO, LURA, GIRAF, GPS, GSRA.
      ii. Examples:
         2. LaTech - LURA - Mary Smith - Jaylen Jones - Final Report Upload Materials
   b. For your uploaded images:
      i. Include at least two photos featuring supported participants performing funded activities. We encourage the submission of additional photos, especially for projects with numerous students.
         1. Name the images as follows: Image 1, Image 2, Image 3, and so forth
         2. For any figures (outside of the required 2 photos), name them as follows: Figure 1, Figure 2, Figure 3, and so forth
         3. Each file name must correspond to a list in the Word document containing comprehensive captions
      ii. See Appendix A for file naming examples.
   c. For your Microsoft Word document:
      i. This file will contain comprehensive image/figure captions, details related to Project Results and Dissemination, and a Student Participant List if you did not provide that information in the previous section.
      ii. Name the Word document the same as the zip file folder name
      iii. Comprehensive captions list for uploaded images and figures:
         1. List out the file names based on how you named them (e.g., Image 1, Image 2) followed by a colon (:)
         2. After the colon (:) include a comprehensive caption answering the following questions:
            a. Who is in the photo? (full names)
            b. What is happening? What information is the figure imparting?
c. Where are the photographed people? Where was the figure shared if a poster presented? (city, state, conference name, etc.)

d. When was the photo taken? (month, date, & year is preferred)

3. See Appendix B for comprehensive caption examples.

d. iv. For details related to project results and dissemination:

1. Provide a list of any products, publications, or recognitions that you noted earlier in this report. Include the following details:
   a. Manuscript title
   b. Journal name
   c. DOI (if available)
   d. Conference name, date, location
   e. Link to publications
   f. Other available and relevant details

2. See Appendix B for examples.

3. Optional Upload Space 1: Upload a zip file containing additional content relevant to your funded project. Be sure to include these items in your Word doc captions list, following the identifier format you chose. Remember the 100MB upload limit.

4. Optional Upload Space 2: Upload a zip file containing additional content relevant to your funded project. Be sure to include these items in your Word doc captions list, following the identifier format you chose. Remember the 100MB upload limit.

Additional comments or feedback

Please provide any additional comments or feedback for this question in the online form.

Appendices

Appendix A

Screenshot of file naming convention for figures, images, and Word document.
Appendix B

Sample Word document containing Project Participants (students, collaborators, and K-12 / Outreach participants), captions of images and figures, and project results and dissemination details.

Project Participants

A. Student Participant List

1. Mike the Tiger, undergraduate, $3k, 160+ direct contact hours
2. Tech XXII, undergraduate, $0, 200+ direct contact hours
3. Lacumba, graduate student, $10k, 160+ direct contact hours
4. Mike the Tiger, undergraduate, $6k, 250+ direct contact hours
5. Tech XXII, undergraduate, $7,300, 300+ direct contact hours
6. Lacumba, graduate student, $9,000,
7. Mike the Tiger, undergraduate, $0, 100 direct contact hours
8. Tech XXII, undergraduate, $300, 52 direct contact hours
9. Lacumba, graduate student, $2k, 120 direct contact hours

B. Collaborators List

2. Dr. Jane Doe – NASA program scientist Dr. Jane Doe who leads the Citizen Science program, Multi-Mission Algorithm and Analysis Platform (MAAP) – Consultant
4. Jane Doe – LSUHSC-S – Microscopy
5. John Doe – Kennedy Space Center – Helped to run RPM 2.0
6. LSU Health Shreveport – BioStart Program – provided high school student researchers
7. LSU Health Shreveport – Hicks SMART Program – provided high school student researchers
8. Dr. Jane Doe – Professor in the Department of Electrical and Computer Engineering & Bioengineering at the University of Puerto Rico – Helped in accessing initial R-codes for DEG analysis of microarray transcriptome of plants grown under microgravity conditions in the International Space Station
9. Energy Institute of Louisiana (EIL) – University of Louisiana at Lafayette – Provided the research facility for the student to perform the coding tasks, the literature review tasks, and writing tasks.

C. K-12 / Outreach Participants Table

<table>
<thead>
<tr>
<th>K-12 / Outreach Participant Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Learners (elementary, middle, high school, undergraduate, graduate, post doc)</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Images and Figures Captions

Image 1: Mike the Tiger working with photovoltaic material in the Tiger Stripes Lab at LSU on March 5, 2023.

Image 2: Tech XXII, undergraduate mascot researcher, presenting his research results at the Fall 2022 LaSPACE Annual Meeting at LaTech University in Ruston, LA, in November 2022.

Image 3: Headshot of SUBR HIS participant Lacumba in the 2022-2023 academic year.

Figure 1: Results of using the trained MLDEG model when applied to the grey genes of MOLT-4 and DLD-1 with prediction rates at 100%.

Figure 2: Graphical illustration of the data analysis workflow implemented on the microarray transcriptome of the cancer cell lines DLD1 and MOLT4 using machine learning-based DEG (MLDEG) to enhance the detection of differentially expressed genes (DEGs). PPI – condition-specific protein-protein interaction; fcij = log2FC of gene “i” in method “j”; pij = p-value of gene “i” in method “j”.

Project results and dissemination details

A. Peer-Reviewed Publications
   b. This paper is planned to be submitted to Genes MDPI journal before the end of the year.

B. Poster Presentations

C. Other Publications
   a. The codes and data used in the work are curated online in the GitHub repo called “Name_of_Curation”. GitHub Repo URL: https://github.com/otherinfo.
   b. The repository is licensed under the MIT License, which permits commercial use, modification, distribution, patent use, and private use. The license may be changed any time if needed. The repository is being maintained by the project P.I. with the student as a repository collaborator.