RASCAL Intro Meeting 2026

Schedule and Deadlines

Deadlines:

10/13/25: Notice of Intent submission

10/17/25: Deadline to submit questions

10/27/25: Q&A

2/23/26: Proposal deadline

Phase 1 Full Schedule

Description	Date
First Meeting	09/12/25
Faculty Advisor Search	--
Conops	10/02/25
Requirements	10/06/25
Notice of intent	10/11/25
Q&A	10/27/25
Preliminary Design Review	11/14/25
Critical Design Review	12/4/25
Final Design Package	01/09/26
Proposal Rough draft	02/01/26
Full Video completion	02/16/26
Proposal Final Draft	02/16/26
Final Review	02/20/26

Themes:

Theme 1: Communications, Position, Navigation, and Timing (CPNT) Architectures for Mars Surface Operations

- Develop architecture for future infrastructure on Mars
- Accommodate personnel, rovers, habitats, etc on Mars
- Address communications back to Earth
- Prove capabilities on the lunar surface

Theme 2: Lunar Surface Power and Power Management and Distribution (PMAD) Architectures

- Develop Power distribution infrastructure on the moon
- Integrate power management, and energy storage and generation for future technologies (rovers and human settlements) for lunar day and night
- Extra focus on connectivity and user interface
- Outline how this can translate to Mars exploration

Theme 3: Lunar Sample Return Concept

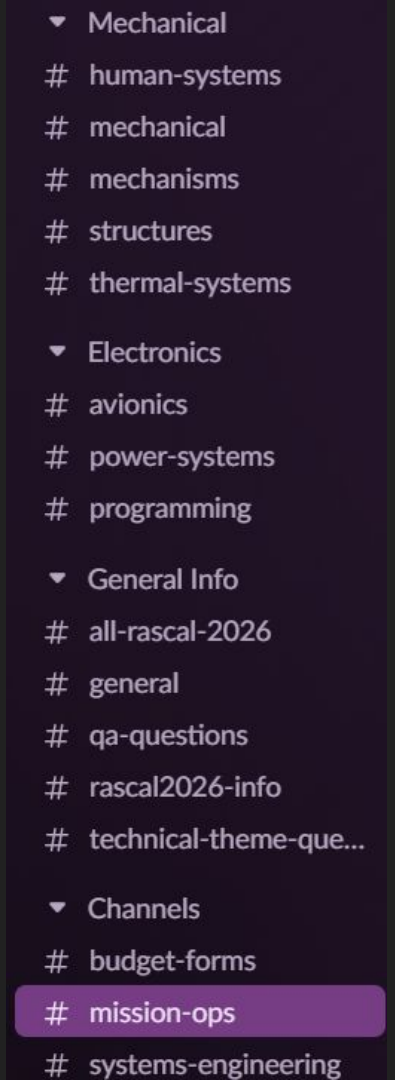
- Adherence to NASA's Moon to Mars Architecture Definition Document
- Deliver payloads up to 100 kg and in different conditions (frozen, unconditioned, refrigerated)
- CONOPS focus: identifying sample type, their storage, treatment, and transport on lunar surface
- Delivery back to Earth

Theme 4: Lunar Technology Demonstrations Leveraging Common Infrastructure

- Use Commercial Lunar Payload Services (CLPS) class payloads (<1000 kg).
- Address at least 3 M2M Lunar Infrastructure capabilities.
- Show how concepts enable industrial operations and/or a lunar economy.
- Define common and evolvable infrastructure needs

Initial Subteams

- Mechanical
  - Structures
  - Thermal Systems
  - Mechanisms
  - Human Infrastructure
- Electrical/Software
  - Power Generation and Distribution
  - Programming
- Mission Operations
- Budget
- Systems Engineering
  - Risk Matrix/management
  - Quality control officers
  - Technology Readiness Levels (TRLs)
  - V chart and conops

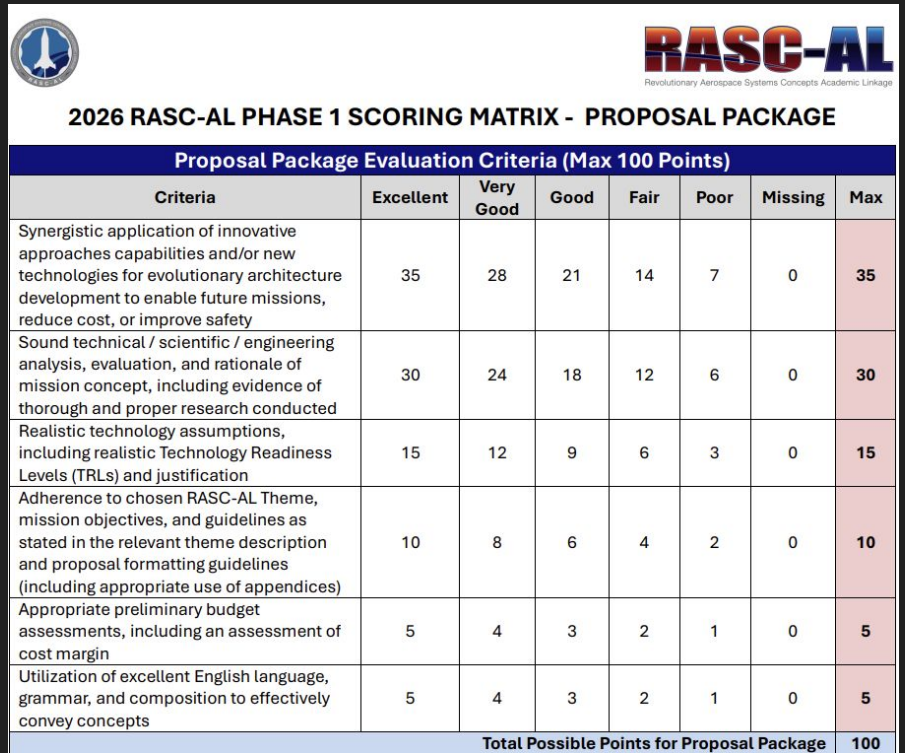


Collaboration and Associated Software

- Mech
  - Solidworks/Fusion
  - Ansys - Computational Fluid Dynamics (CFD) and Finite Element Analysis (FEA)
  - Matlab
  - Lucidcharts - P&IDs, Systems
  - LabView (if we advance)
- Electrical/Software
  - Github
  - C++
  - KiCAD

Expectations

- Innovation, innovation, innovation!
- Strict adherence to NASA frameworks
- No Shortcuts



RASC-AL
Revolutionary Aerospace Systems Concepts Academic Linkage

2026 RASC-AL PHASE 1 SCORING MATRIX - PROPOSAL PACKAGE

Proposal Package Evaluation Criteria (Max 100 Points)							
Criteria	**Excellent**	**Very Good**	**Good**	**Fair**	**Poor**	**Missing**	**Max**
Synergistic application of innovative approaches capabilities and/or new technologies for evolutionary architecture development to enable future missions, reduce cost, or improve safety	35	28	21	14	7	0	**35**
Sound technical / scientific / engineering analysis, evaluation, and rationale of mission concept, including evidence of thorough and proper research conducted	30	24	18	12	6	0	**30**
Realistic technology assumptions, including realistic Technology Readiness Levels (TRLs) and justification	15	12	9	6	3	0	**15**
Adherence to chosen RASC-AL Theme, mission objectives, and guidelines as stated in the relevant theme description and proposal formatting guidelines (including appropriate use of appendices)	10	8	6	4	2	0	**10**
Appropriate preliminary budget assessments, including an assessment of cost margin	5	4	3	2	1	0	**5**
Utilization of excellent English language, grammar, and composition to effectively convey concepts	5	4	3	2	1	0	**5**
						Total Possible Points for Proposal Package	**100**

Previous projects - Review for some inspiration

https://rascal.nianet.org/2022-teams/

Introduction to CONOPS

- A description of how our systems will be operated
  - Data architecture
  - Critical events
  - Operational timeline
  - Logistics
- Creation of diagrams for visual aid
- Video Explanation: https://www.youtube.com/watch?v=VmwWslWMNGU

Q/A