Open edX® LMS at the Core: Delivering NASA's 'Open Science 101' as a Scalable, Data-Driven Learning Program

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The Project

NASA turned to Racoon Gang for help in designing and delivering the Open Science 101 curriculum as an online program hosted on a branded Open edX® platform. Five SCORM-based modules from Articulate Rise 360 were integrated with Open edX solutions, paired with analytics and digital badges to support scale, quality, and recognition for learners worldwide.

The Challenge

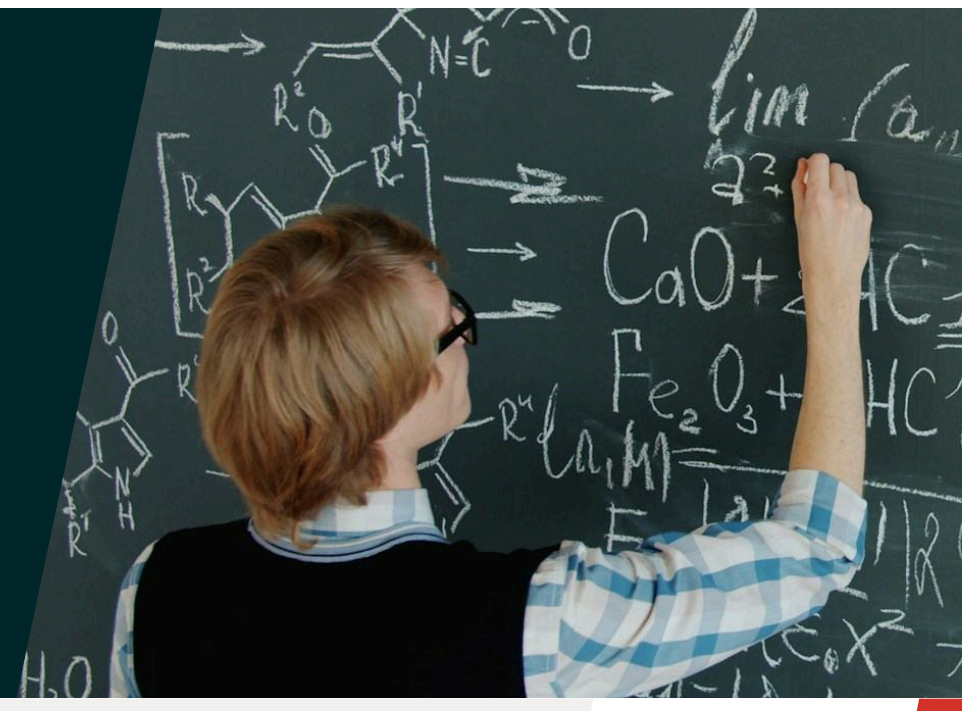
NASA aimed to empower 20,000 scientists with a structured curriculum while ensuring the experience worked effectively inside Open edX LMS. The team required strict sequencing (progressing module by module), support for varied lesson structures, and options for both full and fast-track paths. They also wanted a badge system tied to assessment outcomes and to launch under tight timelines—initial build in around 3 months with iterative updates.

The Organizations That Made This Possible:

NASA · RACCOON GANG · OPEN edX®

The Solution

The Open edX platform was the delivery backbone for the NASA Open Science 101 project, ensuring quality and smooth operations at scale. To address the challenge, Raccoon Gang content experts and instructional designers used their profound expertise with LMS projects to develop five Rise 360 modules, which were then integrated into Open edX software via SCORM for compatibility and easy delivery.



Key Features

- **Five-module Curriculum:** Five-module curriculum with 25 lessons delivered on a Branded Open edX platform.
- **Seamless SCORM Integration:** Integrating SCORM-based Rise 360 modules for reliable playback and tracking.
- **Guided Progression:** Implementing sequential unlocking and progression rules to guide learners through content.
- **Data-Driven Insights:** RG Analytics integration for tracking learning data and reporting.
- **Credential Recognition:** Integrating the Credly badge to recognize achievements and share credentials.
- **Quality Assurance & Support:** Post-launch L1 support and beta-testing cycles ensured quality and smooth operations at scale.
- **Interactive Learning Experience:** Including rich interactivity (quizzes, drag-and-drop, tabs, accordions, video) to boost engagement.
- **Broad Accessibility:** Adding on-demand, web-based access for broad reach across audiences.

Challenges and Solutions

Let's take a closer look at how Raccoon Gang managed to face the main challenges of this Open edX platform-based NASA project:

1. **Enforcing linear progress**
   Solution: Configure sequential access and progression rules in Open edX platform.
2. **Varied lesson structures across modules**
   Solution: Package content in Rise 360 and standardize via SCORM before LMS delivery.
3. **Credentialing on completion**
   Solution: Integrate Credly to issue badges based on assessment results.
4. **Actionable insights at scale**
   Solution: Enable RG Analytics to track progress and outcomes for continuous improvement.

“On our recommendation, NASA chose the Open edX platform to host the new Open Science 101 course. From branding to role management and L1 support, the platform kept operations running smoothly: we launched on schedule and can scale without a rebuild."

Olha Turutova | Head of Instructional Design & e-Learning Content, Raccoon Gang

The Impact

The result is an end-to-end online curriculum that equips learners with open-science skills, fosters transparency and collaboration, and supports NASA's plan to reach 20,000 researchers. Hosting on the Open edX platform with analytics and badges created a scalable, recognized learning pathway backed by real-time data.

Why the Open edX Platform?

Large and Supportive Community

The Open edX platform benefits from a vast community of developers, educators, and learners, providing continuous support and innovation.

Strong Organizational Backing

The Open edX initiative is backed by a consortium of renowned institutions, including MIT, ensuring its long-term sustainability and development.

Proven Track Record

The platform has a successful history of delivering high-quality online courses and has been widely adopted by leading educational institutions.

Lessons Learned and Future Outlook

The Open edX solution worked well for structured, large-scale delivery. The next phase is about leveling up data, reach, and operations without changing the core stack.

- **Standards-first content pipeline**: Use SCORM with the Open edX solution for stable content and easy updates.
- **Progression by design**: Use sequential gating and requirements for the full path, plus a fast-track route with checkpoint assessments for experienced learners.
- **Analytics as a product feature**: Choose a few KPIs, wire them into RG Analytics dashboards, and review them regularly.
- **Credentialing that motivates**: Tie Credly badges to clear mastery rules and automate messaging at completion to boost shareability and recognition.
- **Built to scale cohorts**: Use Open edX cohorts, roles, and announcements to serve multiple audiences and intakes while keeping instructor workload manageable.

Conclusion

By combining Rise 360 content with Open edX delivery, RG Analytics, and Credly, NASA's Open Science 101 became a structured, measurable, and credentialed online experience—ready to scale and continuously improve.