

EPOLLEO DIVERSITY PLATFORM

User Manual, Functional Guide, and Legal Terms of Participation

Effective Date: July 1, 2025

Governing Jurisdiction: United States (Federal), South Dakota (State)

1. ABOUT EPOLLEO AND PURPOSE OF THE PLATFORM

1.1 Epolleo Inc. – Overview and Legal Entity

Epolleo Inc. is a nonprofit organization incorporated in the State of South Dakota, with its principal address at 47080 273rd Ave, Harrisburg, SD 57032-8102. Epolleo exists to foster equitable scientific exploration and preservation of microbial biodiversity. Through the development and operation of the Epolleo Diversity Platform, the organization serves students, educators, researchers, and institutions by providing a secure, ethical, and standardized system for documenting, sharing, and analyzing microbial samples.

1.2 Purpose of the Epolleo Diversity Platform

The Epolleo Platform is a digital infrastructure designed to:

- Enable **hands-on scientific exploration** through field-based and classroom-based microbial sampling.
- Facilitate the secure **submission, classification, and validation** of microbial samples.
- Issue **Diversity Credits**—digitally serialized records that document a verified microbial contribution.
- Promote **open-access, ethical licensing, and educational use** of biodiversity data.
- Allow **traceable data sharing** with research, educational, and conservation stakeholders under structured legal terms.

The platform serves both educational and research communities, with clear pathways for students to contribute valid data and for institutions to build lasting repositories of environmental knowledge. It encourages environmental stewardship, transparency in science, and legally sound data handling practices.

1.3 User Categories and Participation Roles

To ensure that participants understand their rights and obligations, all users are categorized under defined roles:

- **Students** (13 years and older, with school or parental consent): Can collect and upload microbial samples, track Diversity Credits, and contribute to educational projects.
- **Educators and Classroom Facilitators**: Can manage student projects, validate sample metadata, oversee permissions, and report ethical or procedural issues.
- **Researchers and Scientists**: Can initiate campaigns, submit data under institutional licenses, request high-level validation, and apply for credit licensing.
- **Institutional Admins**: Responsible for managing cohorts, enforcing compliance, and authorizing credit licensing.

- **General Public/Observers:** May view retired or public projects, review educational resources, and participate in non-submission roles.

All user roles are governed by the same privacy, security, and ethical standards regardless of age, location, or institutional affiliation.

1.4 Mission Alignment and Sustainability Principles

Epolleo's mission is rooted in biodiversity conservation, digital equity, and data integrity. All platform functions are structured around:

- **Scientific Accuracy:** Every submission must meet minimum metadata quality standards to qualify for validation and credit issuance.
- **Privacy and Consent:** All submissions involving minors, private property, or human-associated samples must comply with U.S. legal requirements and institutional review board (IRB) best practices.
- **Transparency and Reusability:** Project data and Diversity Credits are designed to be openly shared under ethical licensing frameworks to support scientific replication and downstream innovation.
- **Financial Sustainability via Ethical Credits:** Serialized Diversity Credits may be licensed to vetted institutions or environmental campaigns under nonprofit guidelines that support education and preservation initiatives.

2. USER ROLES AND RESPONSIBILITIES

2.1 Individual Users

- **Students** must comply with their institution's policies and ensure that proper permissions are secured before collecting any samples, especially if conducted on private property or involving organisms associated with human environments.
- **Responsibilities:** Accurately record metadata, follow sample hygiene protocols, and submit documentation with clarity and truthfulness.

2.2 Authorized Educators and Facilitators

- Educators are responsible for initiating classroom projects, assigning roles to students, reviewing student-submitted data, and flagging any issues related to consent or ethics.
- **Responsibilities:** Review project content for accuracy, validate completeness of student metadata submissions, confirm FERPA compliance, and oversee proper uploading of signed consent documents.

2.3 Researchers and Scientists

- Verified researchers are permitted to launch institutional campaigns and access metadata for broader scientific or policy applications.

- **Responsibilities:** Provide project justification, adhere to IRB guidelines if applicable, request sample usage under approved license agreements, and submit final reports tied to each campaign.

2.4 Institutional Administrators

- Institution-level users (school districts, labs, nonprofits) manage user roles and maintain compliance oversight.
- **Responsibilities:** Authorize student participation, approve group projects, manage licensing requests, oversee data integrity audits, and serve as primary contact for escalated issues.

2.5 Public Observers and Viewers

- May access public datasets, credit archives, or campaign summaries for learning or non-commercial purposes.
 - **Responsibilities:** Respect platform terms, abstain from unauthorized data reuse, and report inaccuracies through the feedback form.
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3. SYSTEM ACCESS AND SECURE LOGIN PROCEDURES

3.1 Creating a New Account

- Navigate to [platform.epolleo.com/signup].
- Users must provide full name, institutional email (preferred), password, role type (student, educator, researcher, etc.).
- Passwords must meet strict complexity guidelines (minimum 12 characters, include upper and lowercase letters, numbers, and symbols).
- Users are required to read and digitally sign the Epolleo Terms of Use and Privacy Policy during onboarding.

3.2 Secure Login and Authentication

- Once registered, users access the system through a secure login gateway.
- All access attempts are encrypted via TLS 1.3 protocols and logged by IP and device fingerprinting.

3.3 Multi-Factor Authentication (MFA)

- MFA is required for all educator, researcher, and admin-level users.
- Methods include app-based token (Authy, Google Authenticator), email OTP, or hardware security keys (FIDO2-compatible).
- Users are periodically prompted to reverify their identity to prevent unauthorized access.

3.4 Account Security Expectations

- Users are strictly prohibited from sharing login credentials.
 - Suspicious login attempts result in temporary lockouts and trigger security alerts.
 - Account recovery requires identity verification through email and possible institutional authorization for underage users.
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4. DASHBOARD OVERVIEW AND MAIN INTERFACE COMPONENTS

4.1 Home Dashboard Functionality

- After login, users arrive at their personalized dashboard which includes:
 - “My Projects” list with filters for active, pending, and archived projects.
 - “Diversity Credit Status” panel summarizing issued, transferred, and retired credits.
 - “Notification Feed” showing updates on submissions, system alerts, or account actions.
 - “Institutional Messages” (if applicable) for cohort-wide communications.

4.2 Navigation Panel

- Accessible on all pages, the navigation bar includes:
 - Dashboard
 - Projects
 - Submissions
 - Diversity Credits
 - Support/Help
 - Account Settings

4.3 Accessibility and Language Options

- Users may toggle font scaling, high-contrast mode, or screen reader compatibility under “Settings > Accessibility.”
- Multilingual support is enabled based on user preference (English, Spanish, French, more in progress).

4.4 Role-Specific Tools

- Students will see simplified navigation and submission forms.
- Educators and researchers can access review tools, sample validation logs, and metadata correction panels.
- Institutional admins access audit logs, licensing records, and user role assignment tools.

5. CREATING AND MANAGING BIODIVERSITY PROJECTS

5.1 Starting a New Project

Users with educator, researcher, or institutional admin permissions can initiate new projects to organize microbial sampling efforts.

Steps to Start a Project:

1. Navigate to the “Projects” section and select “Create New Project.”
2. Enter a project title and description detailing its scientific or educational purpose.
3. Specify project type: Classroom, Research Study, Community Campaign, Environmental Monitoring.
4. Choose start and end dates, and define target sample types (soil, water, plant surface, etc.).
5. Input a general geolocation and select visibility level (private, cohort only, public).

Each project is assigned a unique Project ID for reference, tracking, and reporting.

5.2 Project Configuration Options

- **Institutional Linking:** Projects can be linked to registered institutions for oversight and data retention compliance.
- **Role Assignment:** Assign users to roles (Contributor, Reviewer, Admin) and control edit permissions.
- **Collection Protocols:** Upload standard operating procedures (SOPs), safety guidelines, and submission checklists.

5.3 Project Lifecycle and Archiving

Projects progress through the following states:

- Draft (not visible to other users)
- Active (open for submissions)
- Closed (collection complete)
- Archived (immutable and read-only)

Closed and archived projects are eligible for final campaign reports and public credit listings.

6. SUBMITTING MICROBIAL SAMPLES: WORKFLOW AND REQUIREMENTS

6.1 Submission Interface Overview Users submit individual microbial samples through a guided interface that ensures metadata quality and sample traceability.

Submission Fields Include:

- Sample ID (auto-generated or custom)
- GPS Coordinates (auto-filled or entered manually)
- Collection Date/Time (ISO format)
- Microbial Type (bacteria, fungi, algae, protozoa, etc.)
- Environmental Context (soil, water, plant, synthetic surface, etc.)
- Collector Notes (optional free-text)

6.2 File Uploads and Attachments Each submission may include:

- Field photos
- Microscope images
- Consent documents (FERPA/HIPAA)
- PDF or CSV metadata sheets

File formats accepted: .jpg, .png, .pdf, .csv (max size: 25MB per file)

6.3 Pre-Validation Checklist To reduce delays in approval:

- Confirm accurate and complete metadata
- Verify sample location permissions (e.g., not private land without consent)
- Attach required documentation for student or human-associated samples

7. METADATA STANDARDS AND TAXONOMIC DOCUMENTATION

7.1 Required Metadata Fields To ensure long-term scientific value and interoperability with biodiversity data platforms, the following metadata is mandatory:

- **Sample ID and Project ID**
- **Collector Identity** (pseudonymized for minors)
- **Precise Collection Date**
- **Exact or Approximate GPS Coordinates**
- **Microhabitat Description**
- **Microbial Morphology Tags** (if observable)
- **Temperature, pH, or Other Environmental Conditions** (if measured)

7.2 Taxonomic Classification (Optional but Encouraged)

- Users may assign preliminary taxonomy based on field guides or institutional reference tools.
- Submissions can include taxonomic level: Domain, Phylum, Class, Order, Family, Genus, Species (as far as known).
- DNA barcoding or sequencing data may be uploaded if available.

7.3 Metadata Quality Assurance

- Educators and institutional reviewers are responsible for checking for typos, missing fields, or contradictory entries before submission is approved.
- The system may flag suspicious or duplicate entries for review.

7.4 Integration with External Databases Epolleo supports optional metadata alignment with:

- GenBank/NCBI
- GBIF (Global Biodiversity Information Facility)
- Darwin Core standards
- USDA and EPA microbial lists

Proper metadata allows Epolleo-verified samples to be reused ethically in secondary datasets and biodiversity initiatives.

8. DOCUMENT UPLOADS AND SAMPLE VALIDATION PROCEDURES

8.1 Document Upload Requirements

Each microbial sample submission must be accompanied by accurate and relevant documentation. The following types of files are accepted:

- **Consent Forms:** Required for any project involving minors, school participants, or human-associated sample sites. Must comply with FERPA, COPPA, or IRB regulations.
- **Sampling Protocols:** Descriptions of the methodology used to collect and preserve samples.
- **Photographic Documentation:** Images of the sample site and physical specimen.
- **Analytical Data:** Optional files including microscopy scans, sequencing results, and field measurements.

Accepted Formats: .pdf, .jpg, .png, .csv, .txt (up to 25MB per file). Files are encrypted at rest and virus-scanned on upload.

8.2 File Attribution and Organization

Users must ensure each file is:

- Clearly named with a consistent naming convention (e.g., ProjectID_SampleID_Photo1.jpg)
- Tagged to the corresponding sample in the system interface
- Readable and high-resolution when necessary for visual validation

8.3 Sample Validation Workflow

Once a sample and its accompanying documents are submitted:

1. **Automated Checks:** The platform runs an initial scan for metadata completeness and file compatibility.
2. **Educator/Reviewer Review:** Educators or institutional users assigned as reviewers inspect the content for:
 - Scientific accuracy
 - Ethical compliance
 - Validity of location and taxonomy data
3. **Epolleo Oversight:** For high-impact or publicly viewable projects, a member of the Epolleo validation team may conduct a secondary review.

Samples may be:

- **Approved** (moved to credit issuance)
- **Returned for Edit** (flagged with reviewer comments)
- **Rejected** (archived without credit eligibility)
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8.4 Reviewer Permissions and Logs

All actions by reviewers are logged with time stamps and user credentials. This ensures transparency and traceability for audits or dispute resolution.

9. ISSUANCE AND LIFECYCLE OF DIVERSITY CREDITS

9.1 What Is a Diversity Credit?

A Diversity Credit is a serialized, non-transferable (unless otherwise licensed) digital certificate representing a validated microbial sample. It serves as an immutable record of contribution to scientific biodiversity documentation.

Each credit includes:

- Sample metadata
- Validation timestamp
- Project affiliation
- Assigned user ID
- License state (available, in-use, retired)

9.2 Generation and Tracking

Credits are automatically generated once a submission has passed all validation stages. The user can track credits via the “My Credits” panel:

- View active, pending, and retired credits
- Export metadata summaries
- Generate certification reports for institutions or campaigns

9.3 States of a Diversity Credit

- **Pending:** Awaiting validation
- **Issued:** Approved and visible
- **Licensed:** Assigned to a third-party use case (temporary transfer)
- **Retired:** No longer modifiable or transferable; archived
- **Revoked:** Permanently disabled due to compliance violation or data integrity issue

Each credit has a unique cryptographic hash ensuring its integrity on Epolleo’s blockchain ledger (if enabled).

9.4 Legal and Ethical Standing

Diversity Credits do not grant ownership of the organism but serve as a documented contribution to environmental science. Credits must not be sold or monetized outside of Epolleo-approved licensing frameworks.

10. CREDIT TRANSFERS, LICENSING, AND USE RESTRICTIONS

10.1 Transferring Credits Between Users

Credits may be transferred only within the Epolleo platform and only to verified users or institutions. The system logs all transfers for auditing and compliance.

Transfer process:

1. Select credit
2. Choose recipient from verified list
3. Justify purpose (e.g., group ownership change, research campaign inclusion)
4. Confirm via MFA

10.2 Licensing to External Parties

Organizations such as environmental agencies, biotech labs, or academic publishers may apply to license credits.

Licensing process includes:

- Submission of licensing proposal
- Review of intended use and ethical standards
- Optional fee or royalty structure (for revenue-generating uses)
- License issuance with expiration date and revocation clause

Licenses are project-specific and non-exclusive unless a unique-use agreement is negotiated.

10.3 Restrictions and Violations

- No resale of credits is allowed under any condition.
- Misuse (false licensing, data tampering) results in credit revocation and account suspension.
- Licensing outside the platform without permission is a breach of user terms.

11. PLATFORM SECURITY MEASURES (TECHNICAL AND LEGAL)

11.1 Security Architecture

Epolleo's platform security is built on a zero-trust model incorporating best-in-class practices from NIST and ISO/IEC 27001 frameworks. Core elements include:

- **Network Security:** All API endpoints are secured via TLS 1.3 encryption. DDoS mitigation and Web Application Firewalls (WAF) are active on all ingress points.
- **Endpoint Protection:** Malware scanning and behavioral monitoring on all devices accessing administrative portals.
- **Server Architecture:** Hosted in SOC 2 Type II-certified environments with continuous monitoring, backup, and failover systems.

11.2 User Authentication and Access Control

- All users are authenticated via hashed credentials (bcrypt with 12+ salt rounds).
- MFA is mandatory for elevated privilege roles.
- OAuth 2.0 or SAML 2.0 authentication is supported for institutions.
- Roles-based access control (RBAC) restricts data visibility and modification privileges.

11.3 Logging, Monitoring, and Incident Response

- All user and system actions are logged with timestamps and session metadata.
- Security event logs are retained for a minimum of 2 years.
- In the event of an incident, Epolleo activates a 4-tier incident response protocol involving containment, eradication, recovery, and forensic analysis.

12. PRIVACY PROTECTIONS AND REGULATORY COMPLIANCE

12.1 General Privacy Practices

Epolleo collects the minimum necessary personal data to fulfill its nonprofit, educational, and research mission. No user data is ever sold, monetized, or shared without explicit consent.

12.2 FERPA, COPPA, and HIPAA Compliance

- **FERPA:** Student data is treated as educational records under the Family Educational Rights and Privacy Act. Schools maintain ownership; Epolleo acts as a data processor.
- **COPPA:** Users under 13 must have verified parental consent; systems are designed to prevent unauthorized submissions.
- **HIPAA:** If any microbial sample relates to clinical or human subjects research, Epolleo adheres to de-identification and data minimization protocols in compliance with HIPAA.

12.3 Data Rights and User Controls

Users may request:

- A copy of their submitted data and credit history.
- Deletion of personal account data (excluding archival credit metadata).
- An audit log of access to their submissions.

Requests can be made by emailing privacy@epolleo.com and are processed within 30 days per CCPA standards.

12.4 Data Sharing and Consent Management

Users (or their institutions) must consent to any third-party data reuse, licensing, or publication. Shared datasets are stripped of PII and tracked via license IDs for audit compliance.

13. USER AGREEMENT AND ACCEPTABLE USE POLICIES

13.1 Binding Terms

By registering an account or submitting data, users agree to the legally binding Terms of Use and Privacy Policy, which include clauses for:

- Platform purpose and limitations
- Prohibited uses and content
- License conditions
- Enforcement, termination, and dispute resolution

13.2 Acceptable Use Guidelines

The following actions are explicitly prohibited:

- Submitting falsified, misleading, or plagiarized data.
- Attempting unauthorized access to credits, accounts, or APIs.
- Uploading malware or initiating platform scans.
- Licensing or selling credits outside of Epolleo systems.

13.3 Consequences and Enforcement

Violations of these terms may result in:

- Warning or suspension
- Permanent ban and revocation of credits
- Legal action where applicable

13.4 Dispute Resolution and Governing Law

All disputes shall be resolved under South Dakota law. In case of conflict:

- Users must first attempt informal resolution.
- If unresolved, mediation or binding arbitration will occur in Minnehaha County, SD.
- Litigation is permitted only as a last resort and must comply with both state and U.S. federal statutes.

14. HELPDESK ACCESS, SUPPORT ESCALATION, AND CONTACT INFORMATION

14.1 Helpdesk Overview

Epolleo provides structured user support to ensure accessibility, technical reliability, and procedural compliance for all platform users. Support services are designed to accommodate students, educators, researchers, and institutional administrators with tailored assistance.

Support Channels Include:

- **Online Ticketing System:** Accessible within the platform's dashboard under "Help & Support."
- **Email Support:** support@epolleo.com for technical issues, questions, or feedback.
- **Knowledge Base:** A publicly searchable database of FAQs, user tutorials, data standards, and submission guidance.
- **Live Chat (Beta):** Available to institutional users during designated hours for real-time issue resolution.

14.2 Support Categories and Common Issues

Users may contact the helpdesk for:

- Technical troubleshooting (e.g., login issues, submission errors)
- Account or access management (e.g., forgotten credentials, MFA setup)
- Project and credit visibility questions
- Metadata or credit validation corrections
- Licensing or permissions inquiries

14.3 Response Times

Epolloo support operates Monday through Friday, 8:00 AM to 5:00 PM CT. Service-level agreements (SLAs) for response are:

- **Standard Users:** Response within 72 hours
- **Educators/Researchers:** Response within 48 hours
- **Institutional Admins:** Priority response within 24 hours
- **Emergency/Breach Reports:** Acknowledgment within 6 hours

All tickets are tracked by case number and reviewed weekly to ensure consistency and quality.

14.4 Escalation Pathways

If a request remains unresolved or is time-sensitive:

- **Tier 1:** Request reassignment to a senior support agent.
- **Tier 2:** Formal escalation submitted with documentation of original ticket.
- **Tier 3:** Referral to the Ethics and Science Oversight Committee for policy or compliance concerns.

15. CONTACT INFORMATION AND JURISDICTIONAL NOTICE

For all official inquiries, regulatory matters, partnership proposals, or legal notices, please contact:

Epolloo Inc.

47080 273rd Avenue

Harrisburg, South Dakota 57032-8102

United States

- **General Inquiries:** info@epolloo.com
- **Technical Support:** support@epolloo.com
- **Data Protection Officer:** privacy@epolloo.com
- **Security Reports:** security@epolloo.com
- **Phone:** (605) 880-4193
- **Website:** <https://www.epolloo.com>
- **Platform Access:** <https://platform.epolloo.com>

Jurisdictional Notice:

This platform and its operations are governed by the laws of the United States and the State of South Dakota. All participation is subject to applicable federal statutes including FERPA, HIPAA, COPPA, and relevant state data privacy laws. Disputes shall be resolved exclusively in Minnehaha County, SD.