

EPOLLEO DIVERSITY PLATFORM

User Guide, System Overview, and Terms of Participation

Effective Date: 7-1-2025

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

1. ABOUT EPOLLEO AND THE PURPOSE OF THIS GUIDE

1.1 Mission and Role of Epolleo Inc.

Epolleo Inc. is a nonprofit organization based in Harrisburg, South Dakota, dedicated to preserving microbial diversity and making that data widely available for education, research, and sustainable innovation. The organization's flagship initiative, the Epolleo Diversity Platform, is a digital platform that enables students, educators, researchers, and institutions to collect, catalog, and ethically share microbial samples while earning verifiable Diversity Credits.

1.2 Purpose of the Guide

This guide is designed to provide users with a comprehensive understanding of how to access, navigate, and utilize the Epolleo Platform. It includes detailed instructions for creating accounts, submitting projects and microbial samples, managing diversity credits, and fulfilling legal and ethical responsibilities. The guide is structured to support:

- Students participating in science projects, field activities, or community bioblitz events.
 - Teachers using microbial sampling as a part of their curriculum.
 - Researchers seeking a repository for microbial data or looking to launch sampling campaigns.
 - Institutions managing cohorts of users and administering access and security.
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2. ACCESSING THE PLATFORM

2.1 Eligibility Requirements

Users must meet specific eligibility criteria to ensure secure and responsible use:

- **Minimum Age:** Users must be at least 13 years old. Individuals under 18 years of age require parental or school consent per the Family Educational Rights and Privacy Act (FERPA) regulations.
- **Institutional Affiliation:** It is highly recommended that users have an affiliation with a recognized educational institution, research organization, nonprofit, or governmental body.
- **Geographic Eligibility:** Users must be legally authorized to participate from their jurisdiction of residence. All activity on the platform must comply with U.S. export control, cybersecurity, and privacy regulations.

2.2 Registration and Account Creation

To register for an account:

1. Navigate to [platform.epolleo.com/signup].
2. Provide accurate personal and professional information:
 - **Full Name:** Used to verify contributions and track credit ownership.
 - **Email Address:** Institutional emails are preferred to validate affiliation.
 - **Password:** Must be strong and unique, containing at least 12 characters, one uppercase letter, one number, and one special character.
 - **Institutional Details:** School, lab, or organization (if applicable).
3. Solve a CAPTCHA security test to prevent automated abuse.
4. Review and digitally sign the Terms of Use and Privacy Policy.
5. Confirm email address via secure link sent by the system.

2.3 Multi-Factor Authentication (MFA)

MFA is a required security feature for accounts with upload, administrative, or approval privileges. Once enrolled, users must:

- Choose an authentication method: SMS, email, or an authenticator app.
- Enter the secondary code during each login attempt.
- Re-authenticate periodically or when IP address changes.

2.4 Acceptance of Legal Agreements

Upon account creation, users must agree to:

- Epolleo's **Terms of Use**, which outline acceptable behaviors, limitations of liability, and intellectual property rights.
- The **Privacy Policy** explains how personal, institutional, and project-related data are collected, used, and stored.
- These agreements are legally binding and enforced under the Electronic Signatures in Global and National Commerce (E-SIGN) Act and the Uniform Electronic Transactions Act (UETA).

3. USER DASHBOARD AND ACCOUNT SETTINGS

3.1 Overview of the User Dashboard

After logging in, users are directed to their personalized dashboard. This centralized interface provides access to all major features:

- **Project Summary Panel:** Displays ongoing, pending, and archived microbial projects with key metrics.
- **Diversity Credit Tracker:** Lists all Diversity Credits issued to the user, including metadata such as sample ID, issuance date, and project association.

- **Notification Center:** Displays recent messages from collaborators, platform moderator alerts, and approval or rejection notices.
- **Quick Access Toolbar:** Shortcuts to "New Submission," "My Documents," "Transfer Credits," and "Helpdesk."

3.2 Account Customization and Preferences

Users can customize how they interact with the platform:

- **Language:** The interface supports multiple languages (English, Spanish, French—more languages to come).
- **Time Zone and Display Format:** Users can set their local time zone and choose how dates and coordinates are displayed.
- **Notification Preferences:** Email frequency, content scope, and platform pop-ups can be toggled.

3.3 Linking to Institutional Accounts

Institutional accounts (e.g., schools or research labs) enable group administration and shared credit tracking. Users can:

- Enter a unique join code provided by their organization.
- Request approval to join a group.
- Once approved, users inherit role-based permissions (e.g., Contributor, Approver).

4. CREATING AND MANAGING PROJECTS

4.1 Creating a New Project

Users can initiate a new biodiversity or microbial sampling project by selecting "Create New Project" from the dashboard:

- Enter a meaningful project title and summary.
- Define the **campaign type**: Classroom activity, Bioblitz, Scientific Study, Outreach/Conservation.
- Set start and end dates.
- Input central geolocation (can be general region or specific coordinates).

4.2 Required Metadata for Compliance

Projects must include metadata that supports traceability, reproducibility, and scientific value:

- **Collector Name:** The person responsible for sample handling.
- **Collection Date and Time:** ISO format strongly preferred.
- **GPS Coordinates:** Minimum six decimal places for accuracy.
- **Microbe Type:** Broad classification (e.g., bacteria, archaea, fungi).
- **Sample Context:** Soil, aquatic, plant surface, air, human skin, etc.

4.3 Uploading Documents and Media

Each project can contain digital artifacts:

- **Field Notes:** Raw observations from sample collection.
- **Consent Forms:** Essential for Student Projects and Human-Associated Samples.
- **Photographic Evidence:** High-resolution images of samples and collection environments.
- Files must meet specific format and size requirements and are scanned for viruses upon upload.

4.4 Managing Permissions and Collaborators

Project owners may:

- Invite team members and assign access levels.
- Lock metadata fields once verified.
- Archive or delete projects (subject to data retention policy).

5. SUBMITTING AND TRACKING MICROBIAL SAMPLES

5.1 Submission Workflow

Each microbial sample submitted through the platform goes through a guided submission process:

1. Select an associated project.
2. Enter or scan a unique sample ID barcode.
3. Input geolocation using device GPS or manual entry.
4. Upload related files and field notes.

5.2 Sample Tagging and Classification

Users categorize each sample with:

- Sample state: liquid, dried, cultured, frozen, unknown.
- Host or substrate: plant species, human skin, classroom object, water source, etc.
- Visual observations and user-generated tags (optional).

5.3 Review and Verification Process

Samples are reviewed in three tiers:

- **Initial Review** by project approvers for metadata completeness.
- **Scientific Validation** (optional) by researchers or trained validators.
- **Final Approval** by Epolleo moderators.

5.4 Status Tracking

Users can monitor sample progress:

- Awaiting Review
- Approved (Ready for Serialization)
- Returned for Edit (with comments)
- Rejected (with rationale)

Notifications are sent via dashboard and email.

6. DIVERSITY CREDIT SERIALIZATION

6.1 What Is a Diversity Credit?

A Diversity Credit is a digitally authenticated certificate that confirms the registration, validation, and archiving of a unique microbial sample submitted through the Epolleo platform. Each credit represents a verified contribution to the documentation of microbial biodiversity. The credit is linked to metadata describing its origin, the conditions of collection, the collector, and the intended research or educational context. These credits can be used for academic recognition, scientific contribution logs, campaign tracking, and potential environmental marketplace licensing.

6.2 How Diversity Credits Are Created

The process of credit serialization involves several automated and human-reviewed steps:

1. Once a microbial sample is submitted, reviewed, and approved, the system generates a unique Diversity Credit ID.
2. Associated metadata—including project details, location data, sample type, and contributor information—is bundled with the credit.
3. A secure cryptographic hash (using SHA-256 or stronger) is applied to ensure file integrity.
4. The credit is timestamped and optionally recorded in a blockchain ledger to ensure immutability.
5. The credit is activated and visible in the user's dashboard, assigned to their profile until retired, transferred, or licensed.

6.3 Viewing and Managing Credits

Users can interact with Diversity Credits in the following ways:

- **Dashboard View:** See a list of all credits, sorted by project, issue date, or status.
- **Detailed Metadata:** Click on any credit to view its full metadata record, download associated files, and view review notes.
- **Export Options:** Credits can be downloaded as certified PDFs or exported in CSV/JSON formats for recordkeeping or institutional reporting.
- **Cross-Linking:** Credits can be linked to grant applications, publications, classroom portfolios, or third-party biodiversity registries.

6.4 Blockchain Registration (Optional Feature)

For institutions or campaigns requiring advanced traceability:

- Credits can be registered on a public or private Ethereum-compatible blockchain.
- Smart contracts track issuance, transfer, and retirement events.
- Each transaction includes a permanent hash that can be verified externally.
- Blockchain use complies with U.S. federal data disclosure rules and avoids posting personally identifiable information (PII).

6.5 Lifecycle of a Diversity Credit

- **Created:** Credit is generated and assigned to a user.
- **Validated:** Metadata reviewed and integrity confirmed.
- **Active:** Credit is publicly viewable and usable in reports.
- **Transferred:** Ownership reassigned to another verified user or institution.
- **Retired:** Archived following campaign completion, expiration, or conversion into a final report.
- **Revoked (rare):** Removed if proven to be fraudulent, misused, or duplicated.

7. TRANSFER, LICENSING, AND RETIREMENT OF DIVERSITY CREDITS

7.1 Transferring Diversity Credits

Diversity Credits are transferable digital assets within the Epolleo ecosystem, meaning ownership can shift from one verified user or organization to another. The process is designed to ensure continuity of metadata integrity and full auditability.

To initiate a transfer:

1. Navigate to the “Credit Management” tab and select the credit to be transferred.
2. Click “Initiate Transfer” and enter the recipient’s verified username or institutional ID.
3. Provide a reason for transfer (e.g., institutional consolidation, team reassignment, research publication).
4. Confirm transfer via two-step verification (email and MFA token).
5. Both sender and recipient receive email confirmation and updated blockchain/ledger entries.

Transfers are logged permanently, including date, time, sender, recipient, and purpose. Transferred credits retain their metadata and issue date, with an appended history of ownership.

Transfer restrictions:

- Credits cannot be transferred to unverified or suspended accounts.
- Users cannot transfer credits that are pending approval, under dispute, or already retired.

7.2 Licensing Diversity Credits to Third Parties

In alignment with Epolleo’s nonprofit mission and data-sharing ethics, Diversity Credits can be

licensed (not sold outright) to vetted commercial, governmental, or nonprofit entities for specific uses such as research, product development, or educational campaigns.

Licensing procedure:

- Submit a “Licensing Intent Form” outlining the credit(s) involved, intended use, and anticipated outcomes.
- A legal review ensures compliance with privacy, data use, and scientific integrity policies.
- Epolleo issues a licensing agreement specifying:
 - Licensing term (temporary or project-specific).
 - Permitted use cases (e.g., sequencing, metadata analysis, field replication).
 - Confidentiality and attribution clauses.
 - Royalty or reciprocity terms (if applicable).

Credits under license are marked “In Use” but remain owned by the original submitter unless formally transferred. Unauthorized sublicensing or repurposing of credits may result in suspension or legal action.

7.3 Retirement of Diversity Credits

Retirement is the final state in a credit’s lifecycle. It signifies that the microbial sample and its related data have been fully utilized and archived, often in connection with:

- Research publication,
- Finalized classroom campaign.
- Environmental reporting,
- Expiration of usage timeline.

Steps to retire a credit:

1. Select the active credit from your dashboard.
2. Choose “Retire Credit” and provide an explanation (required for archiving purposes).
3. Submit any supporting documentation (e.g., link to journal article, campaign report).
4. Platform administrators review and confirm retirement within 3–5 business days.

Retired credits:

- Remain publicly viewable in a read-only state.
- Cannot be modified, transferred, or licensed.
- Are timestamped and cryptographically sealed in the ledger.

Retirement ensures long-term visibility while preserving the integrity and non-repudiability of microbial discovery records.

7.4 Revocation of Credits (Exceptional Cases Only)

A credit may be revoked under serious conditions, such as:

- Proven falsification of metadata or documentation.
- Discovery of ethical violations during sample collection.
- Regulatory takedown orders.

Revocation is rare and requires a formal investigation by the Epolleo Ethics and Science Oversight Committee. If revoked:

- All associated public records are flagged.
- The credit is marked “Revoked” in the public registry.
- A redacted summary of the rationale is included in audit logs for transparency.

8. PLATFORM SECURITY AND DATA PRIVACY PROTECTIONS

8.1 Overview of Epolleo’s Security Model

Epolleo employs a multi-layered security model designed to safeguard user accounts, project data, sample submissions, and Diversity Credit records. The platform utilizes industry-standard best practices, including encryption, authentication protocols, intrusion detection, and secure development principles. Security measures are aligned with the National Institute of Standards and Technology (NIST) Cybersecurity Framework, and cloud services are deployed in compliance with Federal Risk and Authorization Management Program (FedRAMP) guidelines.

8.2 Data Encryption and Protection

All user data, including personally identifiable information (PII), metadata, sample records, and credit history, is protected through advanced encryption:

- **In Transit:** All communications between client devices and the platform are encrypted via TLS 1.3.
- **At Rest:** Data stored on servers and cloud infrastructure is encrypted using AES-256.
- **Access Controls:** Data access is strictly regulated using role-based access control (RBAC) and user authentication tiers.

8.3 Multi-Factor Authentication and Access Control

To protect against unauthorized access:

- MFA is mandatory for all administrative and institutional accounts.
- Login attempts are rate-limited and subject to behavioral anomaly detection.
- Passwords are hashed using bcrypt with high iteration counts to resist brute-force attacks.

8.4 FERPA and HIPAA Compliance

Epolleo is committed to upholding the highest standards of privacy protection:

- For K–12 and higher education users, all student data is processed in compliance with the Family Educational Rights and Privacy Act (FERPA).
- If microbial samples include human-associated metadata or originate from a clinical context, the Health Insurance Portability and Accountability Act (HIPAA) is applied, with such data anonymized or encrypted.
- Consent forms and parental permissions are stored in compliance with institutional review board (IRB) guidance.

8.5 Incident Response and Reporting

Epolleo maintains a formal incident response plan. In the event of a suspected breach:

- Affected users will be notified within 72 hours.
- Access may be temporarily disabled while an investigation is pending.
- Full incident details will be disclosed in accordance with the FTC Breach Notification Rule and state-level data breach laws.

8.6 User Reporting Tools

Users can report suspicious activity, suspected data misuse, or platform vulnerabilities by emailing security@epolleo.com or submitting a confidential report through the “Report Issue” button in the dashboard. The Ethics Oversight Committee triages each report.

9. USER RESPONSIBILITIES AND TERMS OF PARTICIPATION

9.1 Acceptable Use Policy

Users of the Epolleo Platform must agree to use the platform ethically and lawfully. Prohibited behaviors include:

- Submitting falsified, plagiarized, or fabricated data.
- Uploading content that violates copyright or intellectual property laws.
- Accessing or attempting to access accounts or credits without authorization.
- Using the platform for non-scientific, malicious, or commercially exploitative purposes not covered under approved licensing.

9.2 User Representations and Warranties

By registering and using the platform, users affirm that:

- They have the legal right and necessary permissions to submit the microbial data and metadata.
- All data submitted is accurate to the best of their knowledge.
- Any sample collected from private property or involving human subjects has been collected in a lawful and ethical manner.

9.3 Consequences of Violations

Violations of the Acceptable Use Policy or Terms of Participation may result in:

- Temporary suspension of access or account features.
- Permanent revocation of user credentials or submitted credits.
- Legal action in cases of willful misconduct or harm.

Epolleo reserves the right to take proactive steps to protect platform integrity, including monitoring usage patterns, freezing suspicious transactions, and cooperating with law enforcement agencies if necessary.

9.4 Legal Jurisdiction and Dispute Resolution

All platform operations and user interactions are governed by:

- **Federal Law:** Including U.S. data protection and cybersecurity statutes.
- **State Law:** Specifically, the laws of the State of South Dakota.

Any disputes arising from user activity, data ownership, or platform access must be resolved through mediation or binding arbitration in Minnehaha County, South Dakota.

9.5 Updates and Amendments

Epolleo reserves the right to amend these Terms of Participation and related policies. Changes will be:

- Communicated via dashboard notifications and email alerts.
- Logged and version-controlled for auditing.
- Deemed accepted if users continue using the platform beyond the notice period.

10. HELPDESK, TECHNICAL SUPPORT, AND ESCALATION PATHWAYS

10.1 Helpdesk Access

Epolleo provides a multi-channel support system to assist users with technical, procedural, or compliance-related issues. Support is available to all registered users through:

- **Web Ticketing Portal:** Accessible directly from the dashboard under the “Help & Support” tab.
- **Email Support:** Users can email questions or concerns to support@epolleo.com. Inquiries must include the user’s registered email and project/credit ID (if applicable).
- **Knowledge Base:** A searchable online help center containing how-to guides, compliance FAQs, workflow diagrams, and platform tutorials.

Support is staffed Monday through Friday, 8:00 AM to 6:00 PM Central Time (CT), excluding U.S. federal holidays.

10.2 Types of Support Requests

Support tickets are triaged into the following categories:

- **Technical Assistance:** Issues with dashboard features, data submission, login problems, or platform navigation.
- **Data Integrity:** Requests for correction or audit of sample metadata, credits, or file uploads.
- **Account or Access Issues:** Role changes, institutional affiliation requests, forgotten MFA devices.
- **Security Concerns:** Suspected data misuse, account compromise, or privacy violations.
- **Feedback and Suggestions:** General comments or proposals for enhancements.

10.3 Response Times and Service Levels

Epolleo strives to resolve support tickets within the following service level targets:

- **Standard User Accounts:**
 - Initial response within three business days
 - Resolution within 5–7 business days depending on complexity
- **Institutional/Organizational Accounts:**
 - Initial response within two business days
 - Priority escalation available upon request
- **Emergency/Breach Reports:**
 - Initial response within 24 hours
 - Immediate routing to the Security Officer and Ethics Oversight Team

All interactions are logged and linked to the user's account for audit purposes.

10.4 Escalation Pathways

If a ticket is not resolved within the expected timeframe, users may escalate their request:

1. **Tier 1 Escalation:** Request reassignment to a senior support representative.
2. **Tier 2 Escalation:** Submit a formal escalation form that details the issue and includes your prior ticket history.
3. **Oversight Escalation:** For matters involving ethics, licensing, privacy, or legal disputes, escalation will be directed to the Epolleo Ethics and Science Oversight Committee.

11. CONTACT INFORMATION AND COMMUNICATION CHANNELS

For general correspondence, inquiries, or official documentation, please get in touch with Epolleo Inc. using the following details:

Epolleo Inc.

47080 273rd Ave

Harrisburg, South Dakota 57032-8102



General Inquiries: info@epolleo.com
Technical Support: support@epolleo.com
Security & Privacy Reports: security@epolleo.com
Phone (Main Line): (605) 880-4193

Mailing Hours: Monday–Friday, 9:00 AM to 5:00 PM CT
Website: <https://www.epolleo.com>
Platform Access: <https://platform.epolleo.com>