

Model Exchange Standards: SBML, SBOL & OMEX — Hands-on

Standardize and share your systems biology models using SBML, SBOL and OMEX/COMBINE archives. This module focuses on how to encode models, attach metadata, bundle simulations and prepare FAIR, interoperable model packages for collaboration, publication and reuse.

Model Exchange Standards: SBML, SBOL & OMEX

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Session 1

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SBML, SBOL & OMEX Landscape

Why standards matter for systems models

[reproducibility and interoperability](#) [reuse and extension of models](#) [FAIR data and model principles](#)

Main standards in the ecosystem

[SBML for dynamical models \(concept\)](#) [SBOL for designs and constructs](#) [OMEX / COMBINE archives overview](#)

Repositories and community resources (overview)

model repositories idea **curation and versioning**
concepts **community guidelines & initiatives**

Session 2

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Encoding Models in SBML & SBOL

SBML structure and concepts (high level)

components, parameters and reactions **units and**
compartments idea **annotations and identifiers**
notion

SBOL basics for synthetic biology designs

components and modules concept **sequences and**
interactions overview **linking SBOL to models idea**

From informal diagrams to SBML/SBOL encodings

identify species and processes **map to components**
and reactions **capture basic metadata and notes**

Session 3

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COMBINE Archives, OMEX & FAIR Workflows

What an OMEX / COMBINE archive contains

models, simulations and metadata **linking SBML and**
SED-ML notion **bundling related files together**

FAIR and documentation friendly packaging

descriptions, README and manifest **provenance and**
version tags **licensing and citation info**

Moving models across tools using standards

export and import mental model **checking**
compatibility and warnings **simple interoperability**
checks

Session 4

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Mini Capstone: Package & Share a Model

Choose a small model or example to standardize

theory plus guided practical

Encode in SBML/SBOL style and create an OMEX package

identify components and annotations **add basic**
metadata and README **bundle files in a COMBINE**
archive

Deliverables: archive, docs and short sharing note

OMEX/zip style archive **README and manifest text**
PDF or HTML summary of contents