TeSS: The ELIXIR Training Portal

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ELIXIR Webinar series
2pm GMT - 15th February 2017

www.elixir-europe.org/excelerate
ELIXIR Platforms

ELIXIR’s activities are divided into five areas called 'Platforms'. These are Data, Tools, Interoperability, Compute and Training. The Platforms are managed by Platform leaders and the work is carried out by groups within the Platforms.

- **Data**: Resources to help the integration and sustainability of life science data
- **Tools**: A discovery portal for data and analysis tools
- **Compute**: Storage, compute and authentication/access services
- **Interoperability**: Resources to aid the discovery, integration and analysis of biological data
- **Training**: A discovery portal for data and analysis tools

+ Use Cases
ELIXIR: A (very) distributed infrastructure for Life science information
Institutions and organization providing training materials, courses, and eLearning

+ many, many, many, many more
Training discovery platform v0.0.1

Search Google or type URL
Great discovery tool...

- If you know the specific name of the thing you’re looking for (e.g. ‘EuBIC Winter School’).
- Not so great if you just want to see what proteomics related events are available.
The Long Tail of Training Resources

Large institutions and repositories
>30 training resources
Significant online presence
Favoured by search engines

Smaller websites
<30 training resources
Often buried in search results
Quick TeSS Overview

• **Aggregation and registration** of training events and materials
• Tools to filter, search, and discover
• Users can **organize** into **packages** and **training workflows**
• Interlinking with other **ELIXIR registries**
• **ELIXIR Node** ‘shop window’ view
• https://tess.elixir-europe.org
TeSS Materials index page

Filter By:
- Content Provider
- Scientific Topic
- Tool
- Standards
- Policies
- Target Audience
- Keyword
- Difficulty Level
- Author
- Contributor
- Licence
- ELIXIR Node

Search for text and order results

Content provider
- GOBLET 93
- Software Carpentry 70
- European Bioinformatics Ins... 69
- IFB French Institute of Bio... 61
- NGS Registry 60
- VIB Bioinformatics Training... 47
- Khan Academy Statistics 32
- ERASysAPP 29
- The Earlham Institute 14
- VBCF BioComp 14

Scientific topic
- Alignment 27
- RNA-Seq 23

"Key-terms", a learning game for conceptual consolidation
A short presentation describing a new participatory method that easily engages course participants in gamestorming and helps to consolidate new knowledge, by collectively agreeing on ways to place concepts in mind maps. "Key-terms" is a classroom game that can be played in a variety of contexts,...

Scientific topics: not specified

200 billion sequences and counting: analysis, discovery and exploration of datasets with EBI Metagenomics
ArrayExpress: Quick tour
http://www.ebi.ac.uk/training/online/course/arrayexpress-quick-tour-1

This quick tour provides an overview of EMBL-EBI’s functional genomics database ArrayExpress. This course was updated in December 2015.

An undergraduate-level understanding of biology is an advantage. You may wish to have a look at our Functional genomics: An introduction to EMBL-EBI resources before taking this course.

Scientific topics: Gene expression, Gene expression and microarray, Functional genomics
Keywords: Gene Expression
Target audience: Beginners
Difficulty level: not specified
Licence: not specified
Authors: Melissa Burke
Contributors: not specified
Doi: not specified
Remote created date: not specified
Remote updated date: 2016-06-14

External resources:
biosharing ArrayExpress

ArrayExpress repository for microarray data
A public archive for functional genomics data compliant with MIAME- and MINSEQE requirements in accordance with compliant data in accordance with MGED recommendations. Includes gene-indexed expression profiles.

Topics: Gene families, Transcriptomics, Mice or rats

View the ArrayExpress repository for microarray data homepage
View ArrayExpress repository for microarray data on bio.tools
Embed in your sites using iAnn widget

Netherlands
Bioinformatics and Systems Biology
research school

Events in the Netherlands

On the BioSB website we are using the international event tool iAnn to collect events and courses.

- National bioinformatics & systems biology events
- International bioinformatics & systems biology events

iAnn is a collaboration of scientific organizations to provide an up to date and reliable repository of events. Many websites worldwide use the iAnn calendar. If you want your course or event presented in the iAnn list, please add it via the iAnn submission form. Read more about iAnn here: [iAnn: an event-sharing platform for the life sciences](https://iann.pro)

List | Map | Calendar

[5 upcoming events](#)

Filtering options...

Displaying 1 to 4 of 4

- [MGC Course 'Technology Facilities'](https://iann.pro/c72608)
  - 2017-02-21 - 2017-02-24
  - Leiden, Netherlands, Leiden, Netherlands

- [PiCO 2017 – Fourth Conference on Frontiers of Aberration Corrected](https://iann.pro/c72609)
  - 2017-04-30 - 2017-06-04
  - Kasteel Vaulbroek, Netherlands

- [e-Science: Computing for Biomedical Research](https://iann.pro/c72610)
  - 2017-06-08 - 2017-06-12
Visual Workflows

- Developing workflows to represent typical data analyses.
- Attaching tools, training, and other resources to each stage.
Registry integration

External resources

• Associate TeSS resources with bio.tools and Biosharing.org resources.
• Search for all training materials about a specific tool, standard operating procedure, database etc.
• Tool-centric search

Cufflinks

Data provided by ELIXIR Tools and Data Services Registry
Click the button to add a tool as an external resource.

🔗 cufflinks cloud IFB

The Cufflinks suite of tools can be used to perform a number of analyses for RNA-Seq experiments. The Cufflinks suite includes programs that work together to perform these analyses. This is an advanced workflow than the version below 2.2.0. http://cole-trapnell-lab.github.io/cufflinks

View cufflinks cloud IFB on bio.tools

🔗 spliceR

spliceR is an R package that allows for classification of full length reads by RNA-seq assemblers such as Cufflinks. spliceR outputs information on alternative splicing, susceptibility of transcripts to the nonsense mutation, and the...
Usage statistics

- From 33 Content Providers
  - 244 Upcoming Events
  - 5900 Past Events
  - 569 Materials
- 1 completed workflow (EMBER)
  - Construction of 3 new workflows underway
  - Many existing workflows being converted to TeSS format soon
- 541 users in past month
  - 4,704 since analytics began Jan 2016
- Workshop feedback surveys have reported some attendees discovered the event through TeSS

elixir
TeSS summary

- Primarily Aggregated + some registered Materials and Events
  - Search and Filter features to help discovery
  - Training workflows to help educate and navigate
  - Subscription services to consistently keep people updated
  - iAnn events widgets to expose in other websites
  - Integration with bio.tools and biosharing.org
  - ELIXIR node views to show what

- Upcoming:
  - More curation tools community aided annotation, automated
  - Collaboration with BD2Ks training portal
  - More integrations with other information services
    - Datasets, Containers, VMs
Aggregation – Not a very API situation

Large Training Sites
- Well-formed APIs
- XML Dumps
- RSS feeds

Medium/Small Sites
- No structured data
Medium/Small sites - Manual entry

**Advanced Python for Biologists**

**Date:**
- Monday 24 - Friday 28 July 2017

**Venue:**
- The King's Buildings, The University of Edinburgh, Edinburgh, Scotland, UK

**Registration deadline:**
- Monday 10 July 2017 noon

**Cancellation deadline:**
- Monday 17 July 2017 noon

**Places:**
- 15 (first come, first served)

**Registration fee:**
- £525 (includes coffee/tea, but no lunch)

**Description:**
Python is a dynamic, readable language that is a popular platform for all types of bioinformatics work, from simple one-off scripts to large, complex software projects. This workshop is aimed at people who already have a basic knowledge of Python and are interested in using the language to tackle larger problems. In it, we will look in detail at the parts of the language which are particularly useful in scientific programming, and at the tools Python offers for making development faster and easier. The workshop will use examples and exercises drawn from various aspects of bioinformatics work. After completing the workshop, students should be in a position to (1) take advantage of the advanced language features in their own programs and (2) use appropriate tools when developing software programs.

**Event type:**
- Workshops and courses

**Start:**
- 2017-07-24 09:00

**End:**
- 2017-07-28 17:00

**Address:**
- The University of Edinburgh, King's Buildings Campus, Edinburgh, United Kingdom
HTML scraper

- Difficult to write.
- Every site is unique
- Some have more treacherous HTML
- Very susceptible to change
- Fixing is re-implementing.
- Build up of technical debt
Enter: Schema.org
Recipe

**Thing** > **CreativeWork** > **Recipe**

A recipe.

Usage: Between 10 and 100 domains

<table>
<thead>
<tr>
<th>Property</th>
<th>Expected Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Properties from Recipe</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cookTime</td>
<td>Duration</td>
<td>The time it takes to actually cook the dish, in ISO 8601 duration format.</td>
</tr>
<tr>
<td>cookingMethod</td>
<td>Text</td>
<td>The method of cooking, such as Frying, Steaming, ...</td>
</tr>
<tr>
<td>nutrition</td>
<td>NutritionInformation</td>
<td>Nutrition information about the recipe.</td>
</tr>
<tr>
<td>prepTime</td>
<td>Duration</td>
<td>The length of time it takes to prepare the recipe, in ISO 8601 duration format.</td>
</tr>
<tr>
<td>recipeCategory</td>
<td>Text</td>
<td>The category of the recipe—for example, appetizer, entree, etc.</td>
</tr>
<tr>
<td>recipeCuisine</td>
<td>Text</td>
<td>The cuisine of the recipe (for example, French or Ethiopian).</td>
</tr>
<tr>
<td>recipeIngredient</td>
<td>Text</td>
<td>A single ingredient used in the recipe, e.g. sugar, flour or garlic. Superseded by recipeInstructions.</td>
</tr>
<tr>
<td>recipeInstructions</td>
<td>ItemList or Text</td>
<td>A step or instruction involved in making the recipe.</td>
</tr>
<tr>
<td>recipeYield</td>
<td>Text</td>
<td>The quantity produced by the recipe (for example, number of people served).</td>
</tr>
<tr>
<td>totalTime</td>
<td>Duration</td>
<td>The total time it takes to prepare and cook the recipe, in ISO 8601 duration format.</td>
</tr>
</tbody>
</table>

**Properties from CreativeWork**                                |                                  |                                                                            |
| about                 | Thing                           | The subject matter of the content.                                        |

[Is this page about metadata? Yes.]

[What is the main subject of the page? Metadata model, specifically the Recipe type.]

[What is the purpose of this page? To explain what a Recipe is, its properties, and its usage.]

[What is the expected type of the cookTime property? Duration.]

[What is the description of the prepTime property? The time it takes to prepare the recipe.]

[What is the expected type of the prepTime property? Duration.]

[What is the expected type of the recipeInstructions property? ItemList or Text.]

[What is the description of the recipeInstructions property? A step or instruction involved in making the recipe.]

[What is the expected type of the recipeYield property? Text.]

[What is the description of the recipeYield property? The quantity produced by the recipe.]

[What is the expected type of the recipeYield property? Text.]

[What is the description of the totalTime property? The total time it takes to prepare and cook the recipe.]

[What is the expected type of the totalTime property? Duration.]

[What is the expected type of the nutrition property? NutritionInformation.]

[What is the description of the nutrition property? Nutrition information about the recipe.]

[What is the attribute of the cookTime property? Duration.]

[What is the expected type of the cookingMethod property? Text.]

[What is the description of the cookingMethod property? The method of cooking, such as Frying, Steaming, ...]

[What is the expected type of the cookingMethod property? Text.]

[What is the description of the recipeCuisine property? The cuisine of the recipe (for example, French or Ethiopian).]

[What is the expected type of the recipeCuisine property? Text.]

[What is the description of the recipeCategory property? The category of the recipe—for example, appetizer, entree, etc.]

[What is the expected type of the recipeCategory property? Text.]

[What is the description of the recipeIngredient property? A single ingredient used in the recipe, e.g. sugar, flour or garlic. Superseded by recipeInstructions.]

[What is the expected type of the recipeIngredient property? Text.]

[What is the description of the Recipe type? A recipe.]

[What is the usage of the Recipe type? Between 10 and 100 domains.]
Classic potato salad

By Matt Tebbutt

**PREP:** 20 MINS

**COOK:** 20 MINS

**EASY**

**SERVES 6 WITH LEFTOVERS**

Team with Christmas leftovers or summer BBQ favourites. Either way, Matt Tebbutt’s Classic potato salad is hard resist

**Nutrition:** per serving

<table>
<thead>
<tr>
<th>kcal</th>
<th>fat</th>
<th>saturates</th>
<th>carbs</th>
<th>sugars</th>
<th>fibre</th>
<th>protein</th>
<th>salt</th>
</tr>
</thead>
<tbody>
<tr>
<td>144</td>
<td>6g</td>
<td>1g</td>
<td>22g</td>
<td>2g</td>
<td>2g</td>
<td>2g</td>
<td>0.04g</td>
</tr>
</tbody>
</table>

**Shopping tools**

Choose a supermarket to see prices

£0.00

Choose a supermarket

Add ingredients to:

- My Shopping List to plan your shop
- Online basket to buy online

**Ingredients**

**Method**

1. Boil the potatoes in salted water for 20
<div itemscope itemtype="http://schema.org/Recipe">

<div itemprop="nutrition" itemscope itemtype="http://schema.org/NutritionInformation">
  Nutrition facts:
  <span itemprop="calories">144 kcal</span>,
</div>

Ingredients:
- <span itemprop="recipeIngredient">800g small new potato</span>
- <span itemprop="recipeIngredient">3 shallot</span>

...
Classic potato salad

TEAM WITH CHRISTMAS LEFTOVERS OR SUMMER BBQ FAVOURITES. EITHER WAY, MATT TEBBUTT'S CLASSIC POTATO SALAD IS HARD RESIST

EASILY DOUBLED / HALVED  VEGAN

Nutrition: per serving

- kcal
- fat
- saturates
- carbs
- sugars
- fibre
- protein
- salt

By Matt Tebbutt  Magazine subscription – 5 issues for £5

PREP: 20 MINS  COOK: 20 MINS

EASY  SERVES 6 WITH LEFTOVERS

**Nutrition Information**:

- **Calories**: 144 kcal
- **Recipe Ingredient**: 800g small new potato
- **Recipe Ingredient**: 3 shallot
Potato Salad Recipes - Allrecipes.com
allrecipes.com/recipes/217/salad/potato-salad/
Find easy recipes for hot German potato salad, creamy bacon potato salad, and more. ... Savory Spanish Potato Salad. Red potatoes, pimento-stuffed olives, and red bell pepper are tossed in a red wine vinaigrette in this colorul picnic salad. Restaurant-Style Potato Salad - The Best Potato Salad Recipe

The Original Potato Salad - Hellmanns.com
www.hellmanns.com/recipes/.../1/the-original-potato-salad
25 min - 300 cal
Combine Hellmann's® or Best Foods® Real Mayonnaise, vinegar, salt, sugar and pepper in large bowl. Add potatoes, celery, onion and eggs and toss gently. ... Also terrific with Hellmann's ® or Best Foods ® Mayonnaise Dressing with Olive Oil.

Potato Salad Recipe : Ina Garten : Food Network
www.foodnetwork.com › Recipes & How-Tos
Lots of mayo, mustard and fresh dill: how potato salad is meant to taste! ... Meanwhile, in a small bowl, whisk together the mayonnaise, buttermilk, Dijon mustard, whole grain mustard, dill, 1 teaspoon of salt, and 1 teaspoon of pepper. ... Potato Salad Recipes.

Classic potato salad | BBC Good Food
www.bbcgoodfood.com/recipes/75604/classic-potato-salad
40 min - 144 cal
Team with Christmas leftovers or summer BBQ favourites. Either way, Matt Tebbutt's Classic potato salad is hard resist. From BBC Good Food.

How to Make the Best Potato Salad – foodiecrush
www.foodiecrush.com/how-to-make-the-best-potato-salad/
Aug 21, 2014 - This classic potato salad is the one I grew up on. It’s the

Potato salad
Dish
Potato salad is a dish made from boiled potatoes that comes in many versions in different regions of the world. Wikipedia

Nutrition Facts
Potato salad
Amount Per 100 grams
Calories 143
% Daily Value*
Total Fat 8 g 12%
Saturated fat 1.4 g 7%
Polyunsaturated fat 3.7 g
Monounsaturated fat 2.5 g
Cholesterol 68 mg 22%
Sodium 529 mg 22%
Tools to parse

Google Structured Data Testing Tool

https://tess.elixir-uk.org/materials

```html
<div itemscope itemtype="http://schema.org/CreativeWork">
  <span itemprop="name" content="&quot;Key-terms&quot;, a learning game for conceptual consolidation" class="schemaorg-element">&quot;Key-terms&quot;, a learning game for conceptual consolidation</span>
  <span itemprop="sameAs" content="https://tess.elixir-uk.org/materials/key-terms-a-learning-game-for-conceptual-consolidation" class="schemaorg-element">https://tess.elixir-uk.org/materials/key-terms-a-learning-game-for-conceptual-consolidation</span>
  <span itemprop="description" content="A short presentation describing a new participatory method that easily engages course participants in gamestorming and
discussion about key concepts in data analysis.\n\nAfter discussing the theoretical foundations, the course will provide practical advice on how to use the presented methodologies with R.">
    A short presentation describing a new participatory method that easily engages course participants in gamestorming and
discussion about key concepts in data analysis.\n\nAfter discussing the theoretical foundations, the course will provide practical advice on how to use the presented methodologies with R.
</span>
</div>
```

CreativeWork

<table>
<thead>
<tr>
<th>@type</th>
<th>CreativeWork</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Advanced regression methods</td>
</tr>
<tr>
<td>url</td>
<td><a href="http://biocomp.vbcf.ac.at/training/biostat/advregr.html">http://biocomp.vbcf.ac.at/training/biostat/advregr.html</a></td>
</tr>
<tr>
<td>sameAs</td>
<td><a href="https://tess.elixir-uk.org/materials/advanced-regression-methods">https://tess.elixir-uk.org/materials/advanced-regression-methods</a></td>
</tr>
<tr>
<td>description</td>
<td>The aim of this course is to help computational biologists with complex data analysis problems. After discussing the theoretical foundations, the course will provide practical advice on how to use the presented methodologies with R.</td>
</tr>
<tr>
<td>dateModified</td>
<td>2016-11-07</td>
</tr>
</tbody>
</table>
Tools to parse

```ruby
class RdfaExtractor
  # Given an RDF:RDFa::Reader and a schema.org Type
  # returns a hash containing all the available fields and values of the given schema (e.g. CreativeWork AggregateRating Person)
  # e.g. parse_rdfa(rdfa, 'CreativeWork')

  def self.parse_rdfa(rdfa, type='CreativeWork')
    json_graph = JSON.load(rdfa.dump(:jsonld, standard_prefixes: true))['@graph']

    # json_graph looks like this.
    # {
    #   @context => {<some stuff>},
    #   @graph => [ 
    #     { 
    #       "@id" => /audience-tags/beginner-bioinformaticians
    #       "@type" => "skos:Concept"
```
Mark up using schema.org – Google Markup Helper

Home » Services » Advanced Python for Biologists

Advanced Python for Biologists

Date:
Monday 24 - Friday 28 July 2017

Venue:
The King's Buildings, The University of Edinburgh, Scotland, UK

Registration deadline:
Monday 10 July 2017 noon

Cancellation deadline:
Monday 17 July 2017 noon

Places:
15 (first come, first served)

Registration fee:

Year: 2017

Location
Name: The King's Buildings
Address
Street address: The University of Edinburgh
Locality/City: Edinburgh
Region/County: Scotland
Country: Scotland

Image: Python is a dynamic, readable language that is a popular platform for all types...

Description:

URL: 

Performer: 

Offer: 

Price:

Event
Name: Advanced Python for Biologists
Start date: 24
Advanced Python for Biologists

Date: Monday 24 - Friday 28 July 2017

Venue: The King's Buildings, The University of Edinburgh, Edinburgh, Scotland, UK

Registration deadline: Monday 10 July 2017 noon

Cancellation deadline: Monday 17 July 2017 noon

Places:

Registration is now full for this event.

Description:
Python is a dynamic, readable language that is a popular platform for all types of bioinformatics work, from simple one-off scripts to large, complex software projects. This workshop is aimed at people who already have a basic knowledge of Python and are interested in using the language to tackle larger problems. In it, we will look in detail at the parts of the language which are particularly useful in scientific programming, and at the tools Python offers for making development faster and easier. The workshop will use examples and exercises drawn from various aspects of bioinformatics work. After completing the workshop, students should be in a position to start taking advantage of the many tools and resources available within the bioinformatics community.
TeSS can then parse the schema.org structured data

Advanced Python for Biologists

http://genomics.ed.ac.uk/services/advanced-python-biologists

Organizer: Edinburgh Genomics
Start: Monday, 24 July 2017 @ 00:00
End: Friday, 28 July 2017 @ 00:00
Venue: The King’s Buildings, The University of Edinburgh
City: Edinburgh
Country: United Kingdom
Scientific topic: Bioinformatics
Description:
Python is a dynamic, readable language that is a popular platform for all types of bioinformatics work, from simple one-off scripts to large, complex software projects. This workshop is aimed at people who already have a basic knowledge of Python and are interested in using the language to tackle larger problems. In it, we will look in detail at the parts of the language which are particularly useful in scientific programming, and at the tools Python offers for making development faster and easier. The workshop will use examples and exercises drawn from various aspects of bioinformatics work. After completing the workshop, students should be in a position to (1) take advantage of the advanced language features in their own programs and (2) use appropriate tools when developing software programs.

Event type:
- Workshops and courses

Keywords: Bioinformatics, Computerprogramming, Python
Other ways

• By hand
• By one of the many CMS extensions
• Many online tools
What is Bioschemas

• Developing schema.org specifications to work for Life sciences

• Proposing amendments and new schemas to be able to describe Life science resources.

• Events and CreativeWork (materials). Also for tools, data, data repositories

![Bioschemas Image](http://bioschemas.org)
## Event type definition

### Data fields

#### Legend:
- **CN**: Cardinality (one, many)
- **CG**: Content Guideline (M: minimum, R: recommended, O: optional)
- **CV**: Controlled Vocabulary

<table>
<thead>
<tr>
<th>Property</th>
<th>Expected Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>aggregateRating</td>
<td>AggregateRating</td>
<td>The overall rating, based on a collection of reviews or ratings, of the item.</td>
</tr>
<tr>
<td>attendee</td>
<td>Organization or Person</td>
<td>A person or organization attending the event. Supersedes attendees.</td>
</tr>
<tr>
<td>doorTime</td>
<td>DateTime</td>
<td>The time admission will commence.</td>
</tr>
<tr>
<td>duration</td>
<td>Duration</td>
<td>The duration of the item (movie, audio recording, event, etc.) in ISO 8601 data format.</td>
</tr>
<tr>
<td>endDate</td>
<td>Date</td>
<td>The end date and time of the item (in ISO 8601 date format).</td>
</tr>
<tr>
<td>eventStatus</td>
<td>EventStatusType</td>
<td>An eventStatus of an event represents its status; particularly useful when an event is cancelled or rescheduled.</td>
</tr>
<tr>
<td>inLanguage</td>
<td>Language or Text</td>
<td>The language of the content or performance used in an action. Please use one of the language codes from the IETF BCP 47 standard. Supersedes language.</td>
</tr>
<tr>
<td>location</td>
<td>Place or PostalAddress</td>
<td>The location of the event, organization or action.</td>
</tr>
<tr>
<td>offers</td>
<td>Offer</td>
<td>An offer to provide this item—for example, an offer to sell a product, rent the DVD of a movie, or give away tickets to an event.</td>
</tr>
<tr>
<td>organizer</td>
<td>Organization or Person</td>
<td>An organizer of an Event.</td>
</tr>
</tbody>
</table>

### Minimum information

- aggregateRating
- attendee
- doorTime
- duration
- endDate
- inLanguage
- location

### Controlled vocabularies

- eventStatus
- offers
- organizer

### Cardinality

- aggregateRating: Many
- attendee: One
- doorTime: M
- duration: One
- endDate: Many
- eventStatus: O
- offers: One
- organizer: R

### Data model

#### Existing properties in `schema.org/Event`

1. New properties for the Event type
   - eventId: Text
   - prerequisite: Text
   - fee: Offer

   - eventId: Many
   - prerequisite: R
   - fee: Many
Special thanks to TeSS and Bioschemas’ collaborators, our guinea pigs, and community

**TeSS Team**
Finn Bacall
Milo Thurston
Aleksandra Nenadic (past member)
Susanna-Assunta Sansone
Teresa Attwood
Carole Goble

**Thanks to**
The ELIXIR Training Co-ordinators
Rafael Jiminez
Martin Cook
Premysl Veselyk
Gabriella Rustici
Dominique Batista
Christof De Bo
Alex Botzki
+ Many more

https://tess.elixir-europe.org and http://bioschemas.org