

# The KGC Open Curriculum

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Presenting the Open Curriculum on Knowledge Graphs & Call for Participation

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Contributors: Steve Gillespie, Bob Lucas

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## Curriculum Designer

Cogan Shimizu

Cogan is an Assistant Professor at Wright State University. His research focuses on human-centered methodologies for knowledge engineering, as well as the development of effective pedagogy for knowledge graph technologies.



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## Community Organizer

### Glenn Clatworthy

Glenn devoted his career to defining, querying, and distributing metadata describing American public television programs and related historical media collections. He is particularly interested in RDF ontologies, taxonomies, and named entity recognition.





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## Curriculum Contributor

Steve Gillespie

As a writer and consultant for over 25 years, Steve designed instruction, organized information, refined processes, and collaborated to develop innovative solutions. He now investigates how to apply semantic technologies such as OWL to analyze text and manage content.



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## Today's Agenda

1

### The Open Curriculum at a Glance

We will present the general motivation for Open Curriculum and our current progress.

2

### Learning Objectives & Paths

What are they, and how are they used?

3

### Breakout Discussion

What are we missing, and how can we fix that?

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# The KGC Open Curriculum

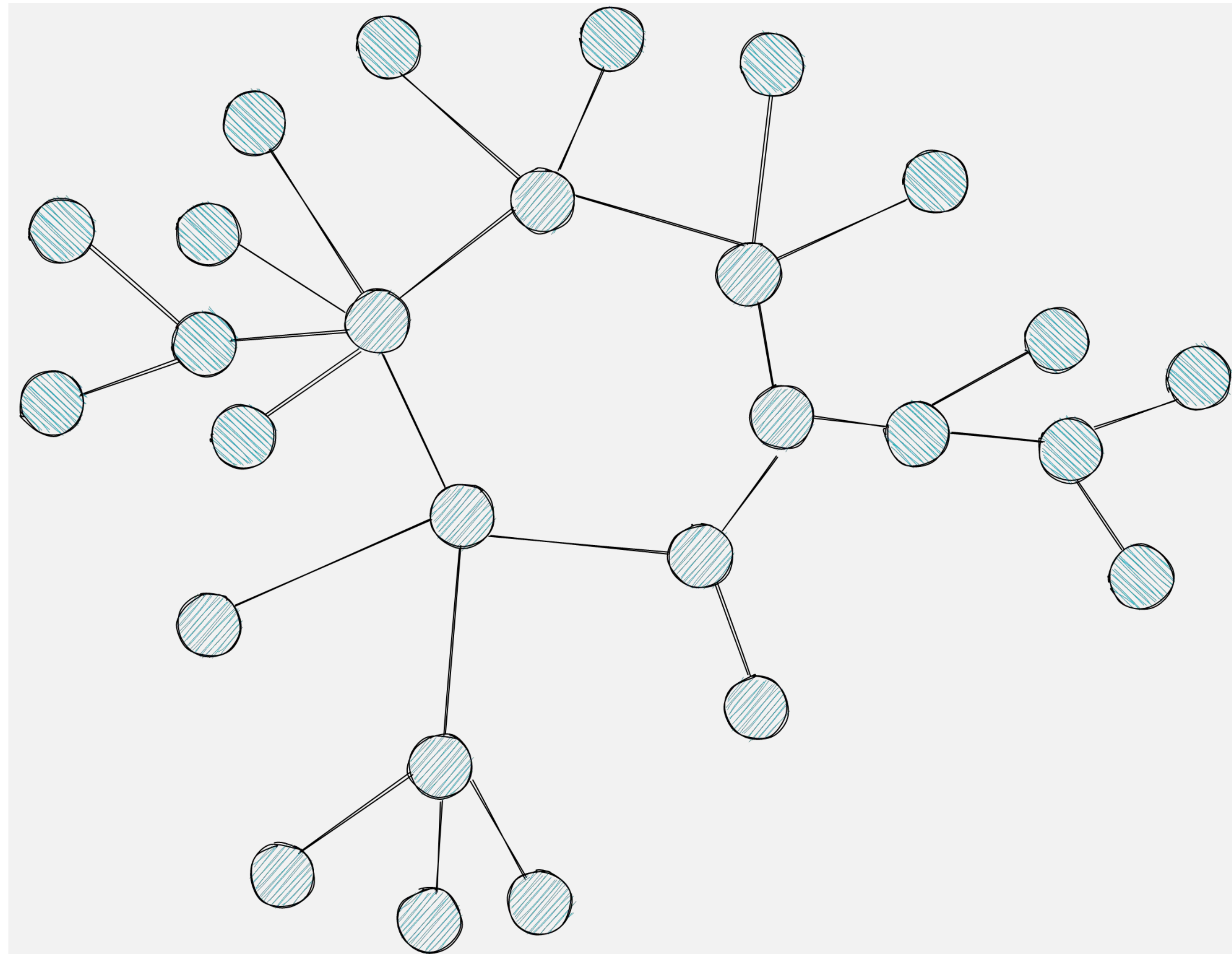
A Top Down View

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# The Motivation

## Knowledge Graphs are Key

- pieces of advanced cyberinfrastructure
- to cutting-edge transdisciplinary research
- to understanding and integrating interrelated, yet heterogeneous, data (sources)





## Modules List

- What is Metadata?
  - Category: Foundational
  - Module Prerequisites: None
  - Audience: Any
  - Level: Beginner
  - Covered Concepts: Metadata
- What is an Ontology?
  - Category:
  - Module Prerequisites:
  - Audience:
  - Level:
  - Covered Concepts: Ontology, Linked Data, Taxonomy, Schema, Statement, Tr

## The Curriculum

is organized into Learning Paths, which seek to achieve Learning Objectives. The steps in the paths are called Modules. Module content is customized to specific audiences. There are currently 45 modules! (We need more!)

## Open Contributions

We host the curriculum on GitHub in order to leverage its powerful and transparent mechanisms for incorporating community content. New content is added through Pull Requests and discussions are held in GitHub Issues or on Slack!



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# The KGC Use Case

## Connecting our Resources

1.

Foremost, we want to provide quality education material demonstrating the power of knowledge graphs!

2.

Interrelate our media library with background knowledge and additional learning resources

3.

Support the KGC Book Club by connecting the books to a wider network of reference materials.

4.

Prepare attendees by connecting KG materials to the content of the workshops!



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# The Qualities

The aim for the KGC Open Curriculum is to be:

- Scalable: Follow a similar, integrated, and extensible pattern for each module
- Efficient: Follow a well-thought-through design that won't waste anyone's time
- Minimalist: Keep it simple
- Strategic: Focus on the 20% of the subject that is used 80% of the time
- Not serious: Be friendly, conversational, self-deprecating, and "you" focused
- Coherent: Integrate modules with clear links mapped to associated domains
- Graph-ic: Use knowledge graphs to illustrate how topics relate within a module
- Practical: Help practitioners put theory into practice
- Executable: Equip participants to develop semantic models using executable syntax
- Authoritative: Reference expert sources like those featured in the KGC Book Club





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# The Qualities Illustrated

The [Class and Subclass Module](#) tries to be:

- Scalable: Follows pattern: Details, Content, Related KGC Media, References
- Efficient: Questions get answered
- Minimalist: Six sections go pretty quickly
- Strategic: Class is a “top-ten” knowledge graph topic
- Not serious: It’s a little breezy
- Coherent: Links to modules like OWL, Introduction to Logic, Set Theory
- Graph-ic: An informal graph summarizes key points
- Practical: Needs to incorporate authentic tasks
- Executable: Class and subclass apply to both RDF and OWL
- Authoritative: Cites Michael Uschold’s book (KGC Bookclub) and dictionaries following MLA





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# Learning Objectives & Paths

A Stroll through the Curriculum

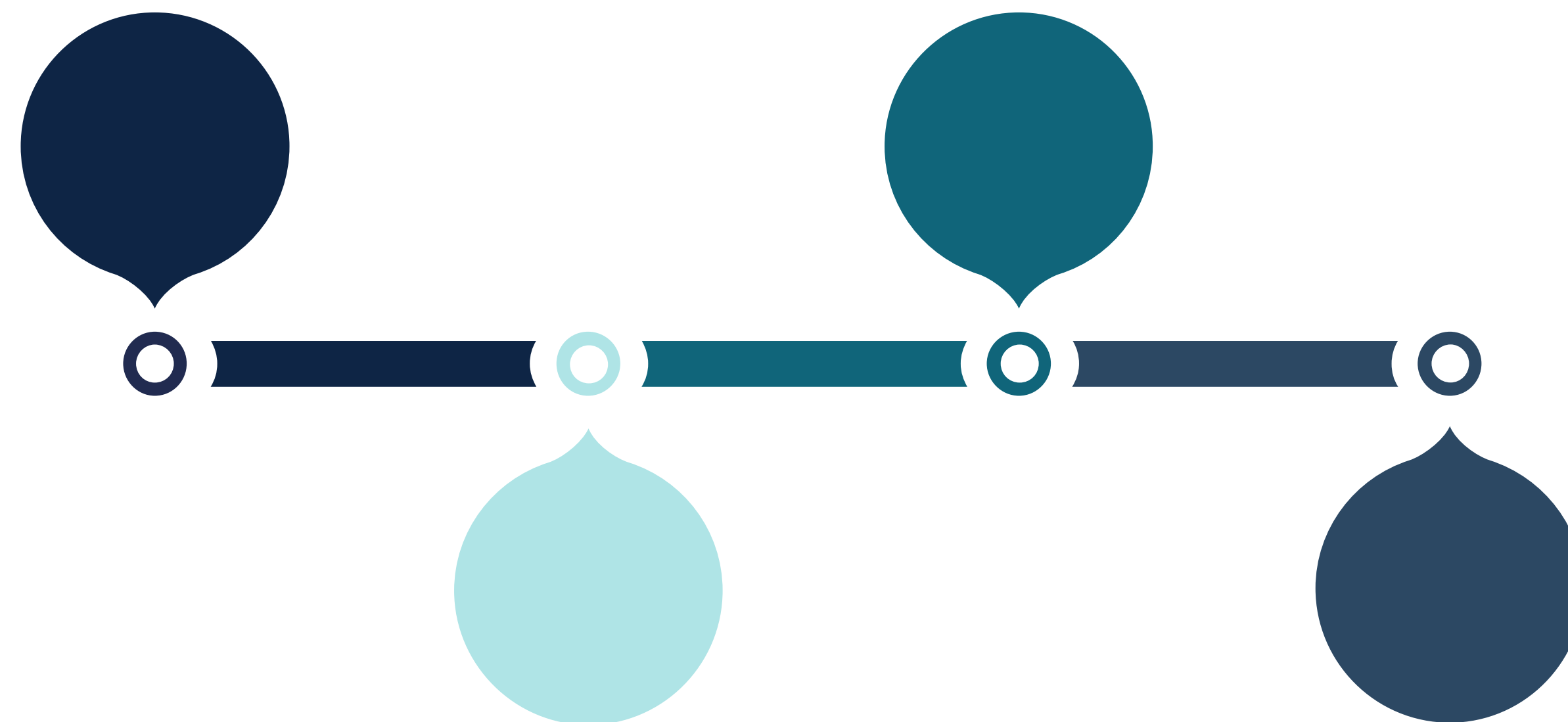
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# I am a beginner, and I want to know “What is a taxonomy?”

This is an example of a “learning objective.”

The path through the curriculum that we take in order to achieve this objective is called a Learning Path

This particular path has 6 modules, which we discuss briefly in the following slides.



## What is Metadata?

This module introduces a general description of what metadata is and a general motivation for why it is important.

[./curriculum/modules/What is Metadata](/curriculum/modules/What is Metadata)

## RDF

An introduction to RDF as a syntax, with a general motivation of why it is necessary.

[./curriculum/modules/RDF](/curriculum/modules/RDF)

## RDFS

Expands the knowledge of RDF, which now supports set theoretical operations, and other quality of life improvements.

[./curriculum/modules/RDFS](/curriculum/modules/RDFS)



SKOS  
Some useful terms for organizing thoughts, in particular a focus on “broaderThan” and “narrowerThan”.  
[./curriculum/modules/SKOS](/curriculum/modules/SKOS)

## Turtle

A gentle introduction to a more human readable RDF syntax.

[./curriculum/modules/RDF Serializations](/curriculum/modules/RDF_Serializations)

## Taxonomy

Finally, an answer to the question: What is a taxonomy?

[./curriculum/modules/What is a Taxonomy](/curriculum/modules/What_is_a_Taxonomy)

# Module Structure

The default template provided for all modules includes the following sections:

<b>Details</b> <ul style="list-style-type: none"><li>• Category: <a href="#">Resources</a></li><li>• Module Prerequisites: <a href="#">RDFS</a></li><li>• Audience: <a href="#">Student</a>, <a href="#">Developer</a></li><li>• Level: <a href="#">Beginner</a></li></ul>	A <a href="#">Details</a> section defining the module category and prerequisites as well as the audience(s) and student level
<b>Content</b> <p>Content text.</p>	A <a href="#">Content</a> section in which the body of the module text should appear
<b>Related KGC Media</b> <ul style="list-style-type: none"><li>• Workshop example</li><li>• Tutorial example</li></ul>	Links to other KGC tutorials, workshops, archived book club sessions, and conference media
<b>References</b> <p>[1] Reference example.</p>	Links to other related online resources and published works
<b>Contributors</b> <ul style="list-style-type: none"><li>• [Insert your name here!]</li></ul>	The name of everyone who has collaborated on the module

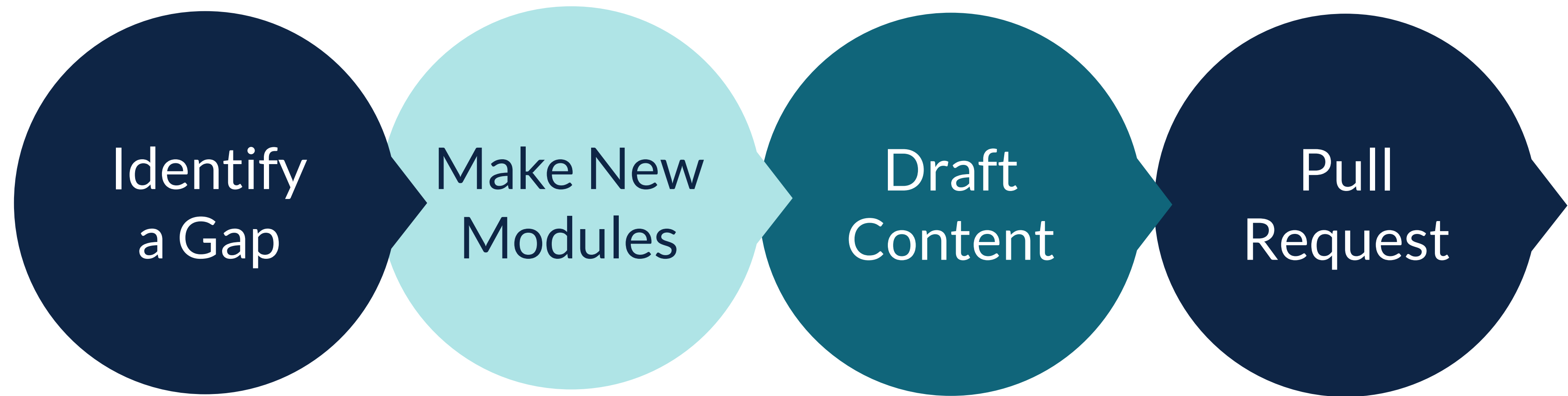
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# Breakout Discussion

Identifying Gaps and Adding New Content



## Breakout Goals



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# #KGC2021

## Join the Conversation



@KGConference    @**add your twitter handle if you have one**



[linkedin.com/company/the-knowledge-graph-conference/](https://linkedin.com/company/the-knowledge-graph-conference/)



[youtube.com/playlist?list=PLAiy7NYe9U2Gjg-600CTV1HGypiF95d\\_D](https://youtube.com/playlist?list=PLAiy7NYe9U2Gjg-600CTV1HGypiF95d_D)



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# Report Backs

We recommend you add 1-2 sentences here or a few bullet points on the topic and elaborate on the details in your talk track as you present.

Add a visual - screenshot, image or GIF to support your content

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