COGBIO-06

Visualise and interpret the results of computational analysis of life science data

Overview

This standard identifies the competencies you need to visualise and interpret the results of computational analysis of life science data.

You will be required to demonstrate that you can carry out analyses and interpret the results working collaboratively with other scientists. You must show that you can format and present this data, including programmatic coding to generate visualisations, taking into account the nature of your audience. Your work should ensure that your audience can understand the results of the analysis, and you should be able to train them in the skills to understand the results where necessary.

This activity is likely to be undertaken by individuals working in Life Science, Pharmaceutical, Chemical Biology, Agritech & Biotech industries. This could include job titles described as bioinformatics, computational biology, computational toxicology, Cheminformatics, Health informatics, Medical informatics, Agri-informatics for example.

Performance criteria

You must be able to:

P1 carry out the analysis of life science data using appropriate methods.
P2 identify which colleagues have expertise to aid in understanding the data.
P3 present data in an appropriate format for the target audience.
P4 design a data visualisation that communicates key data insights.
P5 code or create the data visualisation.
P6 work with colleagues and other scientific topic experts to relate the data to the original experimental question.
P7 interpret the results of the analysis in the context of a bigger life science landscape.
P8 where required, train colleagues to understand the methods used.
P9 guide and supervise colleagues in their use of analysis results.

Knowledge and understanding

You need to know and understand:

K1 the experimental question that the data has been collected to address.
K2 the technical needs of your audience.
K3 a range of common desktop data visualisation tools.
K4 a range of web-based visualisation libraries.
K5 how to process the transform data into a suitable format for the chosen visualisation tool.
K6 relevant programming or scripting languages to process and visualise the data.
K7 a range of data visualisation types so you can choose an appropriate one for the data.
K8 how to design a visualisation to convey key messages.
K9 how to present the data in a relevant context.
K10 how to present the data fairly, without bias.
K11 where to find supporting data and annotation to complement the results being visualised.
K12 the requirements for producing publication-quality images from data visualisation.
K13 how to communicate key technical concepts to multi-disciplinary colleagues.

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Developed by	Cogent
Version Number	1
Date Approved	27 Sept 2018
Indicative Review Date	27 Sept 2022
Validity	Current
Status	Original
Originating Organisation	Cogent
Original URN	COGBIO-06
Relevant Occupations	Information and Communication Technology Professionals, Science, Science and Mathematics Science, Science Professionals
Suite	Bioinformatics
Keywords	relevant, programming, scripting, languages, process, visualise, data