

### Improving Reproducibility Course Overview

**Course description:** These online courses are intended for Life Science researchers at any stage of their research career who are actively planning, supervising, conducting, reviewing, analysing and/or disseminating *in vivo* or *in vitro* research.

**In summary:**

<b>Course title</b>	Improving Reproducibility for Advanced Life Science Researchers
<b>Who for</b>	Life Science researchers at any stage of their research career who are actively planning, supervising, conducting, reviewing, analysing and/or disseminating <i>in vivo</i> or <i>in vitro</i> research.
<b>Length</b>	This intensive course includes 12 hours total teaching time plus activities for participants to complete in their own time.
<b>Format</b>	8x 1.5hr interactive webinar style tutorials (accessible Live or On-demand) and a mix of group or individual activities.
<b>Overall Purpose</b>	<ol style="list-style-type: none"> <li>1. To raise awareness of all the information, tools, and resources available to support Bioscience researchers to conduct research responsibly.</li> <li>2. To support participants to identify what responsible research means to them, and any changes they can make to improve their research conduct.</li> </ol>
<b>Key content</b>	<ol style="list-style-type: none"> <li>1. Theory: <ul style="list-style-type: none"> <li>• An overview of why the responsible (and reproducible) conduct of Bioscience research is important, plus the role every individual plays in shaping their local research culture.</li> <li>• How the research aim effects the details required at the experimental design and planning stage.</li> <li>• Ways to identify the most appropriate research model, method and/or technique to achieve the research aim.</li> <li>• What the responsible conduct of research means in practice for any given individual and their research project(s).</li> <li>• An overview of common experimental design flaws, how to identify and avoid them.</li> <li>• The benefits of thinking critically, being creative and challenging current thinking to improve the reproducibility and translational value of experimental models, methods and/or techniques.</li> <li>• An introduction to the concept of ‘marginal gains’ and the ‘refinement loop’ to incorporate research results and practical lessons learnt into the experimental design and planning process.</li> <li>• How you can increase your research impact through the dissemination of your research outputs in accordance with current best practice.</li> </ul> </li> </ol>

	<p>2. Activities:</p> <ul style="list-style-type: none"> <li>• Participants will reflect upon the aims of their research and how this affects the information they need to effectively plan and design their experiments.</li> <li>• Participants will have the opportunity to investigate a range of research models, methods and/or techniques and reflect upon which is the most appropriate for their aims.</li> <li>• Participants will be supported to identify their personal research framework and reflect upon what responsible research means to them.</li> <li>• Participants will identify potential sources of bias, confounding factors and uncontrolled variables within their research, and the steps they can take to address these.</li> <li>• Participants will be given the opportunity to reflect upon their research model, methods and/or technique to identify limitations and look for opportunities to make 'marginal gains' or implement 'refinements'.</li> <li>• Participants will review a peer reviewed research paper using a relevant reporting guideline to identify what information is missing and discuss the potential impact this has for reproducibility and interpretation of the results.</li> </ul>
<b>Learning outcomes</b>	<p>By the end of this course participants will be able to:</p> <ul style="list-style-type: none"> <li>• recognise what responsible research means in the context of their own work, and why it is important for the quality, reproducibility and reliability of their research data;</li> <li>• plan their experiments with renewed confidence using a range of tools and resources that are available to support them to design and report their research well;</li> <li>• identify alternative research approaches and opportunities to further improve their research conduct;</li> <li>• reflect upon their research impact and the contribution they make to the research culture within the scientific communities they are a member of (local, national, international).</li> </ul>
<b>Course provider</b>	Responsible Research in Practice
<b>Course Tutor</b>	Nikki Osborne
<b>Max no. of attendees</b>	Live – 10 / On-demand - unlimited
<b>Specifications</b>	This workshop can be tailored to specific institutional, research funder(s), scientific Society or discipline specific requirements