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| **PROJECT DESCRIPTION** |

**Contact information:**

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| **Department/unit/group/institution:** | Centre for Epidemiology and Biostatistics |
| **Contact person:** | Enes Makalic & Katrina Scurrah |
| **Email|Tel:** | k.scurrah@unimelb.edu.au |

**Project information:**

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| **Project title:** | Power and sample size for the classic twin model |
| **Project type :** | Statistical data analysis  Study design or protocol development  Statistical methods development or evaluation |
| **Ethics or other Approval:** | Required  Already obtained  To be obtained by \_\_/\_\_/\_\_\_\_  Not required |

**Extra information:**

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| **Preferred timing:** | First semester, March-June  Second semester, July – November  Either first or second semester |
| **Other remarks:** | projects are biostatistical in nature and require a strong mathematical/statistical background, including skills and experience with linear and logistic regression. |

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| **Outline:** (Short description of research project, including brief description of aspects requiring Masters-level biostatistical expertise)  **Background:**  The “classical twin design” aims to estimate components of variation due to shared genetic effects, shared environmental effects, and unshared effects using data from identical and non-identical twins. A recent publication described a method of calculating the power to detect each of these variance components under certain assumptions. However, this method did not address power to detect differences in correlations between identical and non-identical twins, which is an important first step in fitting variance components models.  **Research question(s):**  This project will develop methods for estimating power for this first step, using both theory and simulations.  **Available data (if applicable):**  **Expected outcomes:**  The methods will be made available on the Twins Research Australia website for researchers to use worldwide. |
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