Project: _____

Assessor:_____ **Date:**_____

Base Time Required

Number of Input Sources:		x 2	
Number of Output Sources:		x 1	
Number of Computation Packages:		x 3	
		Sum	
Overall Size (1-10):		⇒ factor	

Additional Time Required

Number of Libraries:		x 2	
Number of NEW libraries:		x 1	
		Sum	
General Complexity Score (1-10, R):		⇒ factor	
User Design Support (%):		⇒ factor	

Complexity of R involves research level Computer Science. See Guidance

Totals

		Total Units:	
Weeks Per Unit:		⇒	
		Total:	
Buffer (%):		⇒ factor	
		Total Weeks:	

Notes:

Calculation:

In the first two sections, fill in the left columns then apply the transform in the middle to get a value in units for the light-purple. Sum these for the dark purple cells

The orange cells contain multipliers. Convert from scores or percentages using:

Overall Size: *factor = 0.25*level*

Complexity: For 1-10: *factor = 0.05*level*^{2}. For R: estimate the work as best you can based on what you know, and be generous

User Design: *factor = 1 + percent/100*

Total Units in blue is then the sum of the two purple totals, multiplied by the orange factors

Estimate how many weeks per unit based on language, time available etc. 1 unit = 1 week is a good base. Parallel or threaded programs perhaps 2 weeks.

Finally include a buffer factor. Consider both the uncertainty in the estimate, and the consequence of failure. 10% is a good minimum. 100% is not unreasonable for a critical project. Then *factor = 1 + percent/100*

Final total is the blue total, x by the weeks-per-unit. Multiply by the buffer factor for final quote

Factors:

Number of Input Sources: roughly how many sorts or paths of input are there? Do you access a database? Online data? If using input files, add 1 for each file format.

Number of Output Sources: how many distinct output paths are there? How many database tables, or webpages? How many distinct sorts of file writes will you need?

Number of Computation Packages: roughly how many distinct computational chunks are in the project? This means core calculation, distinct sorts of data analysis, classes in OO code etc

Overall Size (1-10): Roughly how large is the project? Generally 1 would be a few files, 3-4 the largest project most post-docs would work on. 5-7 would be a typical community code, 8-10 are reserved for large, multi-person, multi-year projects, such as the core of a flagship grant across institutions

Number of Libraries: roughly how many libraries will you need?

Number of NEW libraries: of those libraries, how many have you never used before? Extra time is needed to get familiar with these.

General Complexity Score (1-10, R): Estimate the general complexity both of the code and the project. 5 is average: a few files, some fairly well described computation, and a few outputs. 1 would be a single-file, single computation script. 10 denotes a large project, with many constraints, multiple developers etc. R is for code that requires research itself: a cutting-edge algorithm, a dedicated platform etc

User Design Support (%): Allow time for supporting your users to design what they want. If this is you, use 0. If you are working with somebody experienced at this sort of project allow 10%, allow more for somebody who is not sure what they need

Worked example for HR's last project:

Base Time Required

Number of Input Sources:	2	x 2	4
Number of Output Sources:	1	x 1	1
Number of Computation Packages:	2	x 3	6
		Sum	11
Overall Size (1-10):	2	⇒ factor	0.5

Additional Time Required

Number of Libraries:	2	x 2	4
Number of NEW libraries:	2	x 1	2
		Sum	6
General Complexity Score (1-10, R):	4	⇒ factor	0.8
User Design Support (%):	10	⇒ factor	1.1

Complexity of R involves research level Computer Science. See Guidance

Totals

		Total Units:	7.48
Weeks Per Unit:	1	⇒	1
		Total	7.48
Buffer (%):	20	⇒ factor	1.2
		Total Weeks:	8.976

Estimated time needed: 7.5 weeks

Actual time taken: approx. 6 weeks