

Environment, Modules, and Job Submission Cheat Sheet			
Environment Variables		Modules	
Print current environment variables: \$ <b>env</b>		Print current environment variables: \$ <b>module list</b>	
Print the contents of a specific variable: \$ <b>echo \$PATH</b> \$ <b>env   grep PATH</b>		Print the contents of a specific variable: \$ <b>module avail</b>	
Define new or edit existing environment variables (contents at the beginning supersedes contents at the end): \$ <b>export PATH=\$PATH:/new/path/to/add</b> \$ <b>export PATH=/new/path/to/add:\$PATH</b>		Define new or edit existing environment variables: \$ <b>module show modulename</b>	
Environment variables reset by logging out and in: \$ <b>logout</b>		Load and unload modules: \$ <b>module load modulename</b> \$ <b>module unload modulename</b>	
		Find more help on using module commands: \$ <b>module help</b>	
Job Submission Script Comparison			
Feature	LSF (Shark)	PBS (Nautilus)	SLURM (Lonestar5)
Resource directive	<b>#BSUB</b>	<b>#PBS</b>	<b>#SBATCH</b>
Number of nodes/procs	<b>-n #</b>	<b>-l n=#:ppn=#</b>	<b>-n #</b>
Wall clock limit	<b>-W hh:mm</b>	<b>-l walltime=hh:mm:ss</b>	<b>-t hh:mm:ss</b>
Queue	<b>-q queue</b>	<b>-q queue</b>	<b>-p queue</b>
E-mail on job begin	<b>-B</b>	<b>-m b</b>	<b>--mail-type=begin</b>
E-mail on job end	<b>-N</b>	<b>-m e</b>	<b>--mail-type=end</b>
E-mail address	<b>-u email</b>	<b>-M email</b>	<b>--mail-user=email</b>
Initial directory	default = `pwd`	default = \$HOME	default = `pwd`
Job name	<b>-J jobname</b>	<b>-N jobname</b>	<b>-J jobname</b>
Output log	<b>-o path/</b>	<b>-o path/</b>	<b>-o file</b>
Error log	<b>-e path/</b>	<b>-e path/</b>	<b>-e file</b>
Out & Err to same log	use <b>-o</b> without <b>-e</b>	<b>-j oe</b>	use <b>-o</b> without <b>-e</b>
Working directory	<b>-cwd path/</b>	<b>-d path/</b>	<b>-D path/</b>
Accounting			<b>-A allocation</b>
Queue Command Quick Ref			
Command	LSF (Shark)	PBS (Nautilus)	SLURM (Lonestar5)
Submit a job	\$ <b>bsub &lt; jobfile</b>	\$ <b>msub &lt; jobfile</b>	\$ <b>sbatch jobfile</b>
Delete a job	\$ <b>bkill jobid</b>	\$ <b>cancel jobid</b>	\$ <b>scancel</b>
Show status of jobs	\$ <b>bjobs</b> \$ <b>bjobs -u all</b>	\$ <b>qstat jobid</b> \$ <b>qstat -f jobid</b> \$ <b>qstat -u username</b>	\$ <b>squeue</b> \$ <b>squeue -u user</b> \$ <b>scontrol show job jobid</b>