

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