

Student's Comments
April 2016 SPICE Training Class
Monrovia, CA
Summary by Charles Acton

Student #1

- * Would be helpful to add a walk-through session where we go through all the steps to find LAT/LON of a camera (FOV projected) on a surface. How would a spectrograph slit be presented? How would instrument optical aberrations be handled?
- * Well documented Toolkit. Missing a document on how to create an Instrument Kernel.
- * Instructors are very knowledgeable. Boris is difficult to follow because the flow of information is so fast with no pauses.

Student #2

- * CSPICE permuted index could use a better way of searching for keywords, something javascript-based instead of using "find" in the browser in order to do proper "token" searches.
- * Advanced courses would be nice.

Student #3

- * SPICE lacks accuracy analysis, for instance a basic indication of whether an ephemeris is accurate to 1 km or 1000 km.
- * Need more documentation for the Python interfaces to SPICE.
- * It would be helpful if you provided an introductory lecture about some of the harder concepts such as time systems (UTC vs. TDB) and aberration corrections before bringing up SPICE routines.
- * I had trouble finding the lessons; viewgraphs should list the URLs.
- * More visuals would help. (I know you want to do that.)
- * The programming lessons are a bit disconnected from each other. It would be great if they had more of a theme, such as "ORX found a moon around asteroid BENNU and your job is to plan an observation campaign for that moon."
- * Thanks for everything.

Student #4

- * So many routines have overlapping capabilities... it is difficult to determine which to use.
- * Programming lessons were useful, but left out some of the "why." For example, how to determine "room" in gdpool.
- * Going through the "Summary of Key Points" tutorial very early in the class would be very useful; it is a great resource and can keep the student focused.

* The class was awesome; thanks for offering it.

Student #5

* Maybe add a geometry finder function that computes the most commonly used "events" for orbiters, such as apoapsis, periapsis, orbit plane beta angles to Earth and sun, noon/midnight/dawn/dusk, etc.

* For the code examples found in the API headers, it would be useful to show where the kernels referenced in the code can be found.

* Programming lessons were excellent.

* Consider scheduling the training classes more often.

* International collaboration is excellent.

Student #6

* It is very difficult to find Microsoft Visual C++ 2008 compiler, and Microsoft made breaking changes since then. I hope the next Toolkit release supports a more recent version.

* Consider putting the solution (numeric) output (for the "hands-on programming lessons") above the solution code so we can see if we got it right before scrolling past the solution code.

* This was a great class, definitely worth the time spent. I am already applying this to work. The Toolkit is very impressive; I feel very powerful!

Student #7

* Add the ability to input local kernels to WebGeocalc.

* Provide access to predicted kernels for missions still in the planning stage.

* Provide greater frequency of training classes.

Student #8

* Consider providing a webinar when a new Toolkit is released.

* Consider adding major observatories (their locations) to WebGeocalc.

Student #9

* Overall a great class, great Toolkit, and great effort to provide as much support documentation as possible.

* When reading the PDF versions of the lessons the format of the of the functions makes it difficult to know which function arguments are inputs versus outputs.

* During the lessons, before explaining how to use each set of functions provide some explanation as to what each calculated quantity actually means. Some people may be new to the astronomical field and may be unfamiliar with certain technical terms.

Student #10

- * Add calculation of swath/footprint coverage: for example, given a target area, find what percentage is covered by a satellite footprint over some time duration.
- * Add ability to import/use ArcGIS shape files specifying the coordinates of a target area of an object.
- * Provide an advanced user's training class.

Student #11

- * The course was very useful to me and the hands-on material is just great. One thing I would have appreciated is a more in-depth description of kernels, especially how to choose the kernels. (The minimum amount necessary.) For this an exercise would have been great.

Student #12

- * Thank you for providing the training course! It's very productive. I learned so much.
- * Some documents for the MATLAB Toolkits are not as detailed as the FORTRAN versions. It would help if they are almost equivalent.
- * Provide access to even the most recent operations kernels.
- * The hands-on programming lessons are great. Perhaps add an interactive quiz for people to enter their codes online and get graded.
- * The tutorials are very good.
- * Please offer training classes more frequently, and definitely offer an advanced class. I like the suggestion about web lectures—a simple recording of this seminar would suffice. Also, a set of very introductory platform-specific instructions would help, such as the fact that MATLAB users need to execute the "addpath" command.

Student # 13

- * I found the training helpful and organized. The only thing I prefer would be to discuss the programming lessons before and after the lessons. Also, having the class video recorded would be a big plus. Thank you.

Student #14

Consider providing a Web Service version of SPICE. I know there are challenges regarding the uploading of kernels, maintaining a state on a server, etc. but the infrastructure (code) could be provided so users run the NAIF-developed Web Service on their own servers/cloud instances. This would turn SPICE into a service more than a library and would be language-agnostic and, obviously, able to run from any device from anywhere.