I am the first coop student to work at LANL (they just started their involvement with the coop program this year. As a result, there will be very few undergraduate students at the lab during the fall term (I was the only undergraduate in my entire division as far as I can tell). However, LANL does employ a lot of students over the summer which means in your second session there will be other students. You will work directly with researchers on the experiment you are doing, which provides a lot of learning opportunities from day 1. Granted, you will probably do doing a lot of side projects, but you would also get to help repair parts of the experiment itself, while learning about how everything works.

The experiments I worked on were the FRXL and RSX experiments. You can read about them on this website: http://wex.lanl.gov. FRXL is a plasma experiment that explores the idea of creating and maintaining and FRC plasma, a special type of plasma that holds promise for being an energy source. RSX explores the phenomenon of magnetic reconnection, which is believed to play a role in the corollas effect from the sun.

The physics involved with these experiments are almost exclusively found in an AEP’s 5th semester courses, specifically mathematical physics(AEP 3210), intermediate electrostatics(AEP 3550), and intro quantum physics(AEP 3610). So if you are an AEP be sure to bring your notes and knowledge from those classes over to Los Alamos, especially from intermediate electrostatics. However, it would be fair to tell you that while the experiments use these concepts you probably won’t be doing much work that involves this knowledge. This is because both of these experiments have been designed well and are currently in the "testing and repair" stage. Specifically, the researchers will run the experiment and get data from the computers until something goes wrong, then work on repairing it until it is fixed, then resume running. As a result, most of the work on the experiments that you will be doing is mechanical in nature, lots of cleaning dirty parts, unscrewing and screwing nuts and bolts, repairing leaks and breaks, etc. You will get very familiar with torque wrenches, Allan wrenches, punches, taps, drills, socket sets, and the like. One of my major projects was fully disassembling, cleaning, and reassembling mechanical pumps for use in the experiments, which is an entirely mechanical job. This is a new experience for me as I personally have never done anything more complicated that screw in a light bulb before I came here. I strongly recommend this job to students that like mechanical work and tinkering. There is also some data analysis involved, which is actually quite complicated due to the nature of the probes and the parameters being measured. Coding is done primarily in IDL, which is very similar to Matlab. The main experiment is controlled by a Labview program, but it is unlikely you will have to do any work in that environment.

The group is pretty isolated: I worked with a group of about 4 other people on the FRXLL experiment. The RSX experiment wasn’t ready to be run when I arrived, and unfortunately by the time I repaired enough mechanical pumps to get it working again my 4 months ran out. Since the group is small, no assigned mentor is needed. You can approach anyone in the group with any questions you may have. Orientation occurs on the first day and is handled by human resources (it’s a general orientation for all new employees). After that, you will go right to the experiment room and begin learning about the experiments. Once you have received all the appropriate training (LANL offers many types of training that you can sign up for) you can help work on the experiments.

While LANL doesn’t provide housing directly, they do offer an online service to help prospective students find available apartments or rooms through wikimapia. If you go to http://www.lanl.gov/students/ in the upper right corner you can see wikimapia links for both rental housing and rental property (renting out a room in someone’s house). Housing is definitely something you want to get as soon as you are
sure you will be working at LANL. It can be tricky though, since a lot of apartments require a six-month lease minimum contract (and you will only be there 4 months at a time at most) which will add up financially. There are some that don't have a month minimum though, and my guess is they sell out fast. If you are comfortable with it, you might consider renting out a room in someone's house, since they would only make you pay for the 4 months you were there. I did this option since I looked for housing very late and they only apartments that were left had six-month lease minimums.

One opportunity you should try and take advantage of is University of New Mexico apartment housing. Some apartments have a significant rate deduction if you are taking at least one class at the University of New Mexico (from what I have heard, the rate would be like $450 a month, which is very nice). I believe the apartment will list this special rate on the wikimapia site if they offer it, but you could always call reception directly and ask them. As long as you managed to find transportation, you could take some easy night class, like ceramics or something, and get the discount.

Transportation is another thing you have to consider. If you bring a car out there, then you are all set. However, I believe the minimum age to rent a car is 25, so unless you physically drive one down to New Mexico you probably can't get one (unless you buy a used one of course). Los Alamos does have some very nice public transportation, Atomic City Transit, which is totally free and runs 1 to 2 times every hour to basically everywhere in Los Alamos. What's more, the transit hub for Atomic City Transit is located right inside the lab itself, so every bus will be able to bring you to work. The downside of relying on this is that they don't run at all on the weekends, so you would have to walk or bike to wherever you need to go. Here's the link for all their routes: [http://www.losalamosnm.us/transit/Pages/default.aspx](http://www.losalamosnm.us/transit/Pages/default.aspx). I personally didn't bring a car out, but I'm a pretty introverted person so I can entertain myself with just my laptop over the weekends.

As for entertainment and leisure, I really just keep to myself, but that is just as much a statement about my personality as it is about the opportunities for fun available. For a while in the end of summer and beginning of fall there is a free local community music performance once every week, usually on a Friday. LANL also has a student activity program, although I have never been to any of their events so I can't tell you if they are good or not. But they have a coffee break once a week and plan stuff like Halloween parties and other things like that. Due to the lack of students in the fall, I believe a very extroverted person would have trouble finding social activities while working at the lab.

As for job hours, you will be hired to work 8 hours a day, but your boss may want to stay later on certain days depending on what is going on with the experiment. Every morning we have an 8:30 meeting where we go over the plan for the day. If you don't have a car and rely on the LANL shuttle to get you to the transit hub for the Atomic City Transit bus, the last LANL shuttle leaves at 4:54, which is unfortunately a little early. If you get a bike you can always ride to the transit hub, plus all Atomic City Transit buses have bike racks to get you to from the hub to anywhere you need to go.

When it comes down to it, the job is fairly isolated, but the work going on at the lab is cutting edge and involves very complex physics. There are a large number of talks on the various experiments going on at the lab that you can attend, involving not just physics but chemistry, biology, and other fields.
I am the first coop student to work at LANL (they just started their involvement with the coop program in 2009. As a result, there will be very few undergraduate students at the lab during the fall term (I was the only undergraduate in my entire division during my fall term). However, LANL employs around 1200 students over the summer, which means in your second session there will be lots of other students. You will work directly with researchers on the experiment you are doing, which provides a lot of learning opportunities from day 1. Granted, you will probably do doing a lot of side projects, but you would also get to help repair parts of the experiment itself, while learning about how everything works.

The experiments I worked on were the FRXL and RSX experiments. You can read about them on this website: http://wsx.lanl.gov. FRXL is a plasma experiment that explores the idea of creating and maintaining and FRC plasma, a special type of plasma that holds promise for being an energy source. RSX explores the phenomenon of magnetic reconnection, which is believed to play a role in the corollas effect from the sun.

The physics involved with these experiments are almost exclusively found in an AEP’s 5th semester courses, specifically mathematical physics(AEP 3210), intermediate electrostatics(AEP 3550), and intro quantum physics(AEP 3610). So if you are an AEP be sure to bring your notes and knowledge from those classes over to Los Alamos, especially from intermediate electrostatics. However, it would be fair to tell you that while the experiments use these concepts you probably won’t be doing much work that involves this knowledge. This is because both of these experiments have been designed well and are currently in the "testing and repair" stage. Specifically, the researchers will run the experiment and get data from the computers until something goes wrong, then work on repairing it until it is fixed, then resume running. As a result, most of the work on the experiments that you will be doing is mechanical in nature, lots of cleaning dirty parts, unscrewing and screwing nuts and bolts, repairing leaks and breaks, etc. You will get very familiar with torque wrenches, Allan wrenches, punches, taps, drills, socket sets, and the like. One of my major projects was fully disassembling, cleaning, and reassembling mechanical pumps for use in the experiments, which is an entirely mechanical job. This is a new experience for me as I personally have never done anything more complicated that screw in a light bulb before I came here. I strongly recommend this job to students that like mechanical work and tinkering. There is also some data analysis involved, which is actually quite complicated due to the nature of the probes and the parameters being measured. Coding is done primarily in IDL, which is very similar to Matlab. The main experiment is controlled by a Labview program, but it is unlikely you will have to do any work in that environment.

The group was very isolated in the fall (I worked in a group of 4 other people for the entire 4 months). The summer term is a very different experience, as there are about twice as many people due the influx of students, postdocs, and other new hires. Experimental progress is very slow at the lab, since both experiments are very complicated and tend to break down or experience complications very easily. In my fall term the FRXL experiment was running for about 1.5 months before extreme breakdowns and failures stopped it for the rest of my work term. The RSX experiment was not running at all during the fall term. Neither experiment was operational during my summer term.

Since the group is small, no assigned mentor is needed. You can approach anyone in the group with any questions you may have, especially any of the postdocs. Orientation occurs on the first day and is handled by human resources (it’s a general orientation for all new employees). After that, you will go right to the experiment room and begin learning about the experiments. Once you have received all the
appropriate training (LANL offers many types of training that you must sign up for) you can help work on the experiments.

While LANL doesn't provide housing directly, they do offer an online service to help prospective students find available apartments or rooms through wikimapia. If you go to [http://www.lanl.gov/students/](http://www.lanl.gov/students/) in the upper right corner you can see wikimapia links for both rental housing and rental property (renting out a room in someone's house). Housing at Los Alamos is notorious for being difficult to find and a general pain, so it is definitely something you want to get as soon as you are sure you will be working at LANL. It can be tricky though, since a lot of apartments require a six-month lease minimum contract (and you will only be there 4 months at a time at most) which will add up financially. There are some that don't have a month minimum though, and they sell out very fast. If you are comfortable with it, you might consider renting out a room in someone's house, since they would only make you pay for the 4 months you were there. I did this option since I looked for housing very late and they only apartments that were left had six-month lease minimums.

One opportunity you should try and take advantage of is University of New Mexico apartment housing. There is a Los Alamos branch of UNM and they provide housing to students taking classes or working at the lab. To apply for this housing you need to enclose a copy of your work contract with your employer, so if you want to take this route be sure to get your hands on your work contract as soon as possible (spots disappear fast).

Transportation is another thing you have to consider. If you bring a car out there, then you are all set. However, I believe the minimum age to rent a car is 25, so unless you physically drive one down to New Mexico you probably can't get one (unless you buy a used one of course). Los Alamos does have some very nice public transportation, Atomic City Transit, which is totally free and runs 1 to 2 times every hour to basically everywhere in Los Alamos. What's more, the transit hub for Atomic City Transit is located right inside the lab itself, so every bus will be able to bring you to work. The downside of relying on this is that they don't run at all on the weekends, so you would have to walk or bike to wherever you need to go. Here's the link for all their routes: [http://www.losalamosnm.us/transit/Pages/default.aspx](http://www.losalamosnm.us/transit/Pages/default.aspx); I personally didn't bring a car out, but I'm a pretty introverted person so I can entertain myself with just my laptop over the weekends. If you are an extroverted person and won't have a car, try and get housing inside Los Alamos itself and not in the neighboring town of White Rock, as you will be stuck there on the weekends.

As for entertainment and leisure, I really just keep to myself, but that is just as much a statement about my personality as it is about the opportunities for fun available. For a while in the end of summer and beginning of fall there is a free local community music performance once every week, usually on a Friday. LANL also has a student activity program, although I have never been to any of their events so I can't tell you if they are good or not. But they have a coffee break once a week and plan stuff like Halloween parties and other things like that. Due to the lack of students in the fall, I believe a very extroverted person would have trouble finding social activities while working at the lab. In the summer, however, the huge influx of students means you can always find something to do with someone in Los Alamos.

As for job hours, you will be hired to work 8 hours a day, but your boss will want you to stay later on certain days depending on what is going on with the experiment. Every morning we have an 8:30 meeting where we go over the plan for the day. If you don't have a car and rely on the LANL shuttle to get you to the transit hub for the Atomic City Transit bus, the last LANL shuttle leaves at 4:54, which is unfortunately a little early. If you get a bike you can always ride to the transit hub, plus all Atomic City Transit buses have bike racks to get you to from the hub to anywhere you need to go.

When it comes down to it, the job is fairly isolated, but the work going on at the lab is cutting edge and involves very complex physics. You can also take advantage in the Lab's diverse grouping of people and studies, as there are experts in nearly every field imaginable located somewhere in the lab. Many
talks on a wide range of topics are offered every week at the lab, so be sure to take advantage of that as well.