# REU interview with Mr. Lawson, 10/3/08

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| Please tell about the REU program. | |
| the REU program came from nsf under crest. We brainstom with nsf people in forestry, wild life, ecology, and how we can implement and set up budget about this. So the initial stage is the budget planning. The general ideas of the skeleton what we are going to do. We met the crest committee and some staff people and sat down with the plan. in ecology, wild life,…… it takes about a year to do the planning process before we actually started REU. It fund for 12 students and we rounded up to 10. because the way we have to pay for their housing and we can really fund the ten of the 12 we originally proposed in the accepted grant. …..it’s a mistake. Actually 11 are funded. I use another funds to fund the other student from public relations dept of aamu. The fund is Birmingham water works funds. We got 28 applications. I picked 12 for our grant. We posted five areas to match with the cfpa crest project, which were cfpa crest project. Which were vegetation, wild life, soil, microbiology genetics, and human dimensions aspect. (human dimensions) is how the people interact with the things we are researching, like the forest itself and how the wild life impacts . Usually it’s measured with webean. How humans positively or negatively affect the research objects or processes. Such as cutting temper, and how the people do that. our goal is how to do that and change the human negative view to positive. And that is the human dimensions that is part of the project. That is forests, the vegetation that is forests, and any plants that would associated with ecosystem. Wild life can be anything from mammals, to insects, to small birds, reptiles, all the different aspects of wild life. the microbiology is a genetic study of the oak’s species. Primary the red oak species. We try to differentiate if this tree truly a northern oak, or it’s a black oak, or it’s a shumod oak. So we have genetics study here which actually study DNA and with genetic we determine what actual true species is that. so we can classify those trees as to their genetics. The next REU we’ll take those genetics and looking to fish and wild life to expanding the genetics part, to not just vegetation, the animal and insects, and even the soil, and micro biology as part of it. The study separately The study separately , let’s say, to study a fish in a pond or lake, how does that species interact with vegetation, and back and forth, all those things are tied up to ecosystem. So it’s all about the ecosystem management. What do we do, how do we ---- how does it impact the fish, the stream, the water quality, the soils, and we get the human dimension. And how do the people view that. can we do things in the forest with wild life, with trees or whatever that might positively impact the people that use those resources and recreate in there. That is a big picture we are looking at. It is good to see how does it impact the humans. Does impact positively? does it impact negatively? Or there is no impact. That is the whole base of the research. Right now we have one doctoral student who has been contracted with the U.S. wild life service in Georgia in a research project studying the fisheries. We have other graduate students who acted as mentors to the students of the REU program. The whole program is a combination of the classroom, field experiences and actual researches. We had field data they collected. They went out with their mentors, they actually did field data collection which was in soil, vegetation, wild life trapping, so they actually collected field data, the go to source, take statistic course with Dr. wang and designed forest research experiment, and go out with mentor and do the actual experience. So they have several different classrooms. They public speaking, there were different things to learn. Computer science, web design, all those things were brought into part of the project. They have classroom education and also did the fieldwork with the mentors. Dr. wang teach them to design basic research. One of the initial stages was the project to design a real simple research experiment that they can do within a time period. That was statistic sound. That design emulate the actual research we did for a big research project. And that shows the results. It was a similar design we have used in a main research project. Our study is a two year or five years’ study, but they can do it in two weeks period of time with a simulated study. Their research is pretty what real research we are doing here which is a small project simulating a big project. The goal would be that we hope some of those students would come back and go into our graduate program, and they could again, come to join our real big project with some of the research they already have started and make it a multi-year study instead of a short term of the study.  two of the students already expressed their interest to come back to our school to take our graduate programs. One is specifically in snake study, the other is in\_\_\_\_\_\_\_\_\_\_X study. And we have a lot of them who have given us positive feedback on vegetation and wild life we hope they could come back. There is possibility that when they apply, we would pick them up. when they come back, we could use the research funds to give them scholarship that will help them with their graduate study. And their REU research experience will definitely help them in their learning and research in the graduate program. (their study is probably an expansion of the REU research project.) the students’ findings are all posted on the website. All the findings are checked by the mentors to make sure that the field data are correct, then let them do the research process. Their findings, since this is such a short time research project, it is mainly educational. It goes in a small part of an overall project. (their finding could go into a real big research project?) so they are in line with what we are doing. Their finding may be a real simple answer to a real simple question in a ecosystem.  what is really interesting to me is that the students are from all over the country. They came to a setting where they know nobody, they are in a new setting. A lot of them are from out of state of Alabama. The big outcome for me was see them grow, and see them interact. We are such a small university. They are one on one with mentor, they are not in a teacher-student relationship, but became friends with each other. On the first day, we had a meeting, we told them what we’ll be doing, what is our program. They sat isolated by themselves or in small groups. After a week or two, they are all sitting together. They interact together, they go to lunch together. They do recreation together. The group dynamic going. Those mentors, graduate students who helped them became friends. It’s not a business relationship, it’s a friendship. That’s real important. On July fourth, we hosted the students in my house on my farm, part of that was a team building such thing. Because some of them could not afford to go home, students came out. We wouldn’t let them alone on holiday. The students, faculty and staff, and mentors stay outside with them play games, play cards, cook BBQ. Interact with them so that they would not feel lonely, on the holiday. It impresses me that when it ends up, students had a very very positive experience and attitude. So it turned out that part of the REU experience was some fun things. They went to Chattanooga, river bay ride, and they went to rock city, they did all kind of fun activities, and they did thing together as a group. We had a lot of picnics. They are part of our family, and part of our culture here. They also developed a social skill in a research environment. That was one of the biggest things I feel we have achieved. I think after this program, the students would make friends, and have life long relationship. We are still in contact with those students.  the research start with a plan among the students and mentors. They negotiate on the design, set goal with the mentors. Then it needs data to fulfill the research. It come with all kinds of outcomes. Their research is simple. At the end of the time, they could provide a simple answer to say yes or no. but out real research is a multiple year large project. That we know or we don’t know. Such as a research on forest. You are looking in a long term. From the tree’s seeding, grow, to be cut. And The natural cycle of the tree growth, compared in controlled woods and naturally growing woods. It take dozens of years to finish. The long term study how human impact on the ecosystem in the ecological cycle. What is the long term outcome. So we have to study that over a long term period. But you must get data in each step, then we get to know what might happen in the next step. What forest would come back, what animals might grow in it, such as snake and deer, bulsom. As the forest mature, there are new species come in to take that side of the wood. You can study on natural generation or you can study on artificial generation. What happens it tornado blow it down, or what happens if human interfere it.  I think the next REU programs would be better since we learned form the first one. We have committed faculty and staff, they gave personal time. The students were brought home to become part of their family, part of our a&M family. So the commitment of the faculty were even better than we had hoped for. We are giving our weekends, even though it is not part of our jobs. It’s a commitment to the student life in REU. Those are the things you can’t make people do. It’s a voluntary work. Not only students get something, we get something by giving \_\_\_\_\_. And that was the real impact we didn’t expect. Those students we expect them to come back. If they can’t, they might recommend their friends to our campus, by telling them their experience in this program. That’s something we hadn’t planned for, that something happens. And that’s something we feel proud of. | |
| past attitude | now attitude |
| low income, not high tech, poor work environment, not rewarding, (more white people than African American people?) | high interest, relate to our quality of life, interested in research design, field work, and experiences, findings, enlarge their vision of the world we live. |
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### Interview with Dr. Yong Wang

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| Interview with Dr. Yong Wang REU is one of the program for NSF. The major idea is to promote STEM. Right now in u.s.a., young people have a lack of interests in math, science, technology, and engineering. It lacks the expertise. The most experts are imported from other countries. The NSF tries to promote that by educating young people in science, engineering, technology and mathematics areas. I got this idea because dr. taylor used to be director of the NSF REU program. We visited NSF three years ago. We talked about the possibilities to establish a REU program in a&m. not many hbcus have this program. There are many REU programs across us country mainly in large schools and white schools. Not many in minority schools in biology field. (what is the uniqueness in educating minority students here). We came back and had a meeting with the faculty and discussed it how to submit a proposal about REU program in am. And we submitted and funded. REU requires an 8-10 weeks program conducted. Have about 8-10 students in june and july. It requires college students involved in and certain number of minority students. the uniqueness of our school is that we are minority school. We recruit most of the minority students in our REU program to teach them research in STEM areas. The minority students have less opportunities to participate in STEM related research training. We try to provide this opportunity for them. This 8 week program involve several components. One component is scientific writing training, because we want them to be able to write scholastically in science. We want to be able to write proposal and paper in right format. (scientific writing skill). Improve their scientific writing skills. The second component is about the ethic training. If you are a scientist, how do you work with the research objects with the ethic issues about the research. The third component is the skills of research data analysis, statistic analysis. We gave them that training in it. The fourth is to be trained to use GIS technology. That’s a new technology used in natural resource field. And it’s computer intensive to do the geographic information system TRAINING. Besides this students have to have research project. Each one has to design their own research project. Each student has a faculty mentor to work with. Each faculty mentor will have a graduate student as a mentor too. (?) the three people, REU student, faculty, and the graduate student become a team to work on whatever the project they are working on. However, the major cost is on REU student. So they have to think about what research project they have to do. Faculty provide ideas, suggestions to plan to do the research to work on. The REU student has to independently develop a project, (?) Develop a proposal, and implement the research project. Collect data. And then have to do data analysis, write the paper and present their research results to all the REU participants at the final stage. The research design is a combination of the work. The faculty provide the professional research suggestions, because the research is a higher level of academic activity. Some are related to complicated processes. It’s not an easy thing. It’s challenging especially for the novice young researchers who have no prior knowledge and experience in doing in those areas. To finish it within 8 weeks is very difficult. The faculty’s guidance is very important. Such as in animal science. It needs a lot of experience, time, and effort. That’s why faculty and graduate student provide advising and ideas for the REU students. For example, one of my students who is conducting a research in water quality. And how that water quality affect animals. It takes a lot of time and difficult to collect water sample and data, to analyze, and get findings. Before they apply, they have to pick a research topic or field they were interested in. we have REU website. They can go to the website to view our research emphases to choose from. They can look at the available mentors in each field. So before they came, they already have an idea of our program and available research areas and which of them could match their interest. So when they came, they can speak out that they like to do research on such as research in soil, wild life, vegetation. The students must meet our criteria, gpa 3.20 as minimum. Then we have to match the faculty interest with the available students’ interests and objectives. Then we let faculty make a choice of the students. it’s two processes. Before the students come to campus, we try to match them with our sources and resources. Because we already know what kind of field they would like to work in and what mentors they would like to work with. We don’t like to force students to do something they are not interested in. but sometimes we do make some suggestions if there is availability. Sometimes there is some changes. We have a lot of students like the wild life area. But we can not provide so many faculty for them to work in that one area. Then we provide some suggestions telling them there are some other research areas they might be interested in. when they come the campus, they talk to the faculty and graduate students to further get familiar to each research area and focus on specific areas they decided to work on. It’s a two way processes. Before they came, we already matched them. If they work on the project that is in their interest, it is more probability for them to work well on that project. If they are forced to do some project that is no in their interest, it is more likely that they would not work so successfully, they would not invest their effort to delve into the project. (match interest)  beside training component, we have another component relating to the research. We want the research is not only the research experience, but also includes research related social interaction, make sure the research is interesting, instead of boring. Cross field research knowledge and methodology. We want they are very interested in research in their future career, and like to go to graduate school and benefit in their graduate degree pursuit.  we also provide professional trainings. As I mentioned to you the ethic training, writing training, GIS training. We also brought them to visit the local genetic research center called Hudson Alpha. Which is a big research center the Research Park. It’s funded by the State Research dept. we also bring them to visit the Huntsville Space Center Museum and relate those high technology research to the current research we provided for them. We also bring them to the black heritage museum, Alabama A&M University museum. We also bring them to the football games, baseball games. Make fun for their life. the last week, we brought them to the Chattanooga aquarium, look out mountain, etc. the main purpose is to make them interested in research field, interested in the life on this campus and this research environment. We thought, maybe many students didn’t know about those research areas we have. Many might think that research is very boring, no interest, not related to their life and career, and not related very much to the environment we live in. so we want them are aware of these opportunities and things. Hopefully after REU, they will be interested, empowered, ambitious professionals to join our research work force.  the way we provide graduate students in this REU program is that the students will talk to them a lot easier, they are more willing to talk to them as they are at the close age, they are all young people. They share more of the same voice visions of the things. But the distance between the faculty and students are larger. They can know easier why those graduate student choose to take these professions as their life career. They call tell them in the student view to emotionally involve them into our professions. I have a graduate student, tim, in this REU program. He is an African American student. He communicates with the students in our REU program is a lot easier than us. His voice sounds more convincing to them. His experience, opinions, and attitude toward the natural resources and environmental science are easily understood and accepted by the REU students here. While he tells why he choose this field, why those fields are interesting to him. We have 11 students. the uniqueness of our program from other program is that majority of them are minority students. that is very different from other REU program in other universities. And that is one of the strength we have. We not only promote STEM, but also promote diversity in the STEM fields. On the other hand, we have two high school African American students in our program. Which other universities don’t have. When we apply for this REU program, NSF is interested in our proposal and want to see how minority high school students work in REU program, since the science education is so important in public schools. That sounds new to the NSF.  (socialize)Those minority students and two Caucasian students get together and interact with each other. They have a lot of interactions for two months, they developed friendship among them. We provided a lot of activities to let them stay together. I can see many of them have become friends. They were very close to each other, and like each other. And their contact is still going on among them. The support to them is not only from the faculty and staff, but also from among themselves. They support each other and provide ideas to each other. They discuss among themselves about the daily research activities. I think that’s another important component for the success of this REU program on our campus.  one of the af student said that he really enjoyed this program. Because the students are diverse. We have 9 af students, two Caucasian students, and one Hispanic student. (They feel no discrimination and intimidation in their relation to the faculty and staff and peers.) so they get together, it became more interesting to them. They also have a desire to know each other with their racial ethnicity background. That student said that she really enjoyed it that students have brought in their different experience, culture and perspectives together, and mingle together so well, which was not found in other schools. I think it’s a good thing to have af students and non af students together in our hbcu school setting to experience REU activities.  (impact in their life) the impact is for both minority students and white students as well.   1. scientific research 2. cross cultural interaction skill development in a highly academic and scientific research setting, 3. social skills among the students and faculty/staff who have different cultural background and with different ethnic perspectives. 4. academic knowledge of the STEM fields for preparing for their decision to choose their future career in a scientific research-based field for the future academic planning. This program is very intensive. They learn together, eat together, work together, study together, research together, play together, and travel together for two months. This has a very positive impact on them. They now know that they can work together, study together, socialize together, and live together to achieve a common goal. They have better understanding and tolerance of different culture and different work habits. Many of the students come from minority schools, from small colleges. They didn’t have enough opportunity to work together with a diverse student body like this. Or with students of other racial backgrounds like this. I think this experience could impact their way of thinking, perceiving, conceptualizing their life in a global perspective. This makes them more open instead of isolated learning or work. (in the real world, the research is a collective contribution by people of all. The development of this scientific social skill would have a long lasting effect on the students) they worked in teams.   one of the af high school students did very well (antonio). He attended a regional conference and presented his research finding, He won the first place research award of upbound \_\_\_\_ with his research result in this summer REU program. This is a competitive competition as high school students. This is a very rewarding experience not only to him, but also to all the REU students of this program when those students got email about this news. They feel excited and feel confident that they are able to succeed. (the two high school students are recommended by the \_\_\_\_ in Georgia. They work with minority high schools.)  Dr. Taylor listened to every final research presentations. He is very satisfied with the research results. He said that the research outcome from our school is comparable with other schools in terms of the research quality, Such as Conell, Arizona, Auban.  this REU outcome is a combination of the faculty, students, and graduate students in this REU program. |

### Interview with Dr. Stone.

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| interview with Dr. Stone. **Please talk about the REU program as a mentor in this program.**  according the dr. Taylor, we must have a NSF project before you can do that. so when we got the forest ecosystem from NSF crest, we are able to place an application to do REU. That allow us this summer to bring in 11 students. they worked on various types of projects, mostly are scientific projects. we got a number of quality student applicants all over the country. Some are from Alabama A&M University here, some from Huntsville. So we conducted different kinds of research projects as well as scientific writing. And statistics, ethics, and the types of training for all of them to go on into the graduate school. And the team did a great job. All the REU students had a good time and doing emergence count and how many bats come out of cave. I didn’t know how many are interested we had. The bat cave in Scottsboro in Jackson county about 40 miles from our campus. About 250 thousand bats. It’s not easy to get the access. It’s controlled by the national refugee system here. We went out there to see pretty spectacular site and I work on research on bats. My student wasn’t really working on that. we are trapping animals and out of the forest and mainly here on campus. Her interest is to put project together some what ahead of time. So tell the students what it is about. When my student got here, We went through and found the project that met her interest in animal behavior. We actually had the animals in the lab for a couple of weeks. like 3 or 4 weeks to do some feeding studies on them to see what the favorite to each are and their reaction to the predator sense. So they got an idea what her research project is about. She got some experience with animals, as well as experience working with projects, analyzing data, Presenting her results, and in writing, and orally. She has been contact with me since REU ended. We are working on a main script together with her research she conducted in this summer. And I think some of the other students too. Especially those who did an outstanding job. They are working on some of the publication as well from their experiences. And most of them are juniors and seniors. Hopefully could attract them to Alabama A&M University for their graduate experiences and enter the graduate programs in our dept. recruit some of the graduate students and give them some experience in research before them go to the graduate school. I know Sarah, the student that won the first place,  sarah got from Baylor university in tx. She got the first place in research presentation. she did on soil project. Our dean who was a former REU director in NSF, was really excited because this was a project even though he wasn’t her mentor, he came to it and was really excited and he really want her to come back to our graduate school in a&m. because she was just an outstanding student, and just want to recruit students like her and increase the program quality in graduate education we have here in our dept of our school. That’s we find something pretty rewarding that we hope to do this again in a summer time. At least one more time. We get opportunity for teacher to do this. Hope we could accomplish under this particular program. We had done some of the project with some of the younger students before but these guys are more advanced and they take on more. We are going to improve next year, to let them develop some skill and some of the training in GIS, and also develop the web pages. I think they are ready for we are going to training some younger students. and now knowing what they are interested in and their skill levels. I think we’ll incorporate that more. Look for the type of the research to accomplish next summer.  how did you plan and design the project with your students?  my student Jen Backer, he put four possible projects that I put on. She said I want to do something with the wild life. I tracked to her application to see what she had and brought her to Birmingham zoo. Her school is in Missouri working but she come here to worked with large tacks. So it’s something we want to do with part of the project. (ask again) if we could find evidence for the mountain lines in our state. We didn’t. but that’s something, next time we could do a few more sites. And try things a little bit different. We tried to collect hairs but she did look at the list, I had the trapping the main ideas she had to handle animals. Because that was the first step for the researchers you might want to do with animals. You had to put your hands on \_\_\_ and maybe you have to biology behavior\_. I find out a little bit about her background, wanting to do animal behavior, we came to put some of the additional ideas generated by her about doing some food preference work response to predator scents. We are using some of the predator scents to do some of the trapping, the scent is the smell, faremon, sexual stimuli. You can buy commercially that trappers use them. And you put them on the food or trap station. The animal smell that they come to the traps. They get trapped. They leave their hair and their evidence there. That’s we are primarily doing. After we trapped more of the animals we know what she want to do with the research we started to do this. we captive cottontail rabbit, had different kinds of food, and we know what the rabbit favorite food was. We input the predator scent on that tray that had the food in it for favorite food. And you know, the rabbit being the pray animal, avoided that food so it took what’s for their favorite food the predate scent made the totally switch what kind of food they like. (30:29) So for animal \_\_\_\_ that the predator has the biggest response you have that the predators and pray had an avoiding areas they use when the predators smell around. That’s kind of the food research we developed. Depending on her interests. (That’s trapping to get data?) Yeah. We brought animals into the lab. We had Opossum had babies. We had rabbits in a little pen. We had food trails going on with that. we did some of the predator scent trails and baby Opossum too. But the rabbit is the study most interesting to her. She spent most of the time on that because she was interested. (spell “Opossum”) Among fifty animals here. We found she was interested in trapping. We did trap. We trapped 25 animals over the summer. We trapped raccoons, we tried to trap ciodi. We got most of the raccoons and opossums. We found out what was she more interested. (Interest and experienced interests related to the research and research motivation and outcome) we did a good experiment with rabbit. The trapping was one focus made in the objective. The second objective was to find out if the predator scent would cause the change in the preferences for different foods. We did the feeding of finding different foods before the predator scents. (28:06) then we did the feeding putting predator scents on her/ most favored food on the rabbit favorite food to see if it will change her preference and which one would eat most of , and did she totally avoided her favorite food to knew it was favorite (27:49). The predator’s scent was on the tray. Since mamma’s smell is very powerful, the scent was enough to cause it to avoid favorite food. And eat something else. So we understand what something he want to eat. That was all for second objective. The third objective was find out if they are mountain lines cooga in the state. And we put hair traps like some carpet with the staples on it to catch the hair. We put the predator scent on that. we put some other visual stimuli like pipe line hanging from the string so that animals could see it **(26:11).** We did this all across Alabama \_\_\_ county in north Alabama. We did this try to catch hair twice to get any proof of **mountain line**.  Question: when you do research on bat, how do you introduce the bat to the students?  we have a forest ecosystem. Dr. wang is in charge of that. we do work on that. we are out there at night. We really Couldn’t drive a hundred miles and we are recording the sounds of the bats. And analyzing the cause, aptitudes, the frequency, and know what kind of species they are. We really cannot do much this summer. We know about the impact on their population, and we have some endangered species here. Which pin down on more of the educational purposes than research.  do you have a frequency detector?  oh yeah. It is named Anabat 6.0. this thing you put in the woods. It picks the sound and records. It picks high pitch that you cannot hear. This detector can divide the frequency by 16. and get the frequency down to a sound you can hear. It is attached to a decan to a module. Which allows you to hook it up to a laptop. Then I can look at the visual image of the call. **(22:00)** Where it is, frequency range. comparing it to a lone that call. That was how we do the bat research.  how do the students like the bat?  they like that. but some of the students were not interested in getting close to the cave. It was not a hardship to walk down toward it. It’s not really disagreeable being out there. We had good weather everything. We tell the students that sometimes there are bat droppings. They wear hat. They are afraid that the bats fly to them.  do they get data from that for research?  we did a lot of the methods how to track the animals. One day the whole REU student body came out with me to my research project field at the forest. Showed them some of the thing our graduate students are doing. We even went down to the waterfalls. At the stream for the lunch picnic. My student Jennifer also helped other students do some thing there for their projects. they had a good over view of a lot of things that are going on with other students’ projects. they are graduate research assistants. They are doing projects either part of the NSF program, or something related. Or participated. Sometimes because their research might be very close to the projects the students are working on. The student developed certain part of the research. If the professor in not present for a few days, the graduate students get involved where they fit in with the students. there are three or four of them are really get involved because the REU program also paid them to do some of the research as researchers. Some of the students helped drive the transportation and help coordinate the REU program. They got to know the students very well. Some of them are Tim, who is Dr. wang’s students he works on Salimentaries, a kind of frog, amphibian like frog, turtles, snakes (**16:26**). Salamander look like a lizard. But live in water. The other students Bill who works for NSF. He works on ecosystem assessment. A lot of assessing and burning on different parts of forests. He showed students his project on amphibian, salimentary and frogs, snake trapping and shared his research result with the REU students. Amphibian is a reptile （爬行动物）. **(16:12).** Crockdiles and turtles, amphibian, fish, mamma these are the major types of animals. (16:02) 10/12/08  does every student has one graduate student to work with? (25:22 on new computer)  not really. It varies. Some of the students work with the graduate students, some work with the professor. Like my student Jennifer works with me. My graduate assistant students are not here for the summer. We did some electrical trapping for fish. You stun them for a little while to catch them. We showed them the technique, not very much to do with research. Some other students work a lot with the staff a lot in the lab, like working with a research lab manager. It was interesting.  What is the most thing that worth reporting?  **The faculty team** we had. Especially with Dr. Moss. (the multicultural faculty team and the student learning team work in reu program**.) even though the research projects are different, they are not wholly independent to each other, they have important bearing on each other. It takes team effort to put meaningful projects tenet together while various experiences are needed.** You have different people doing different things together in this program. (students are working together, influencing each other and faculty are working together and supporting each other.) everybody contribute a little bit. So that students see a lot of different things. (though visual, hearing, socially influencing: social learning effect. Faculty are influencing each other too. Such as seeing other discipline content, subject, and learning teaching activities) you have a nice experience with students and the academic community. Students see a lot of different things and get hands-on experiences. They got things they would not be able to see in their own town and their own cities.  The number one thing I can see is that students get their own network among themselves. they come to be interested in biology. Because they will be back in different universities, we made them into connections to each other and scientist faculty members through this scientific experience. That’s the overall strength we got besides the research project. They actually get some training in research ethics, scientific writing, statistics, GIS and web design. These things are very important and useful tools they might use in their future research projects or graduate studies. I think those are a very beneficial to them probably they don’t realize it yet. (It is a curriculum and **hidden curriculum** in this project they learned behind their realization. It is also a **hidden objective** of this program **to tie the faculty** together as a faculty team in “unite, we stand” academically) when we were graduate students, we don’t have such opportunity to learn such good things and have such experiences. When I was a graduate student, we don’t have so much hands-on learning experience. They are working on those cutting edge things in such a short time and immerse higher learning. That really means they are ahead of other people at the same level who didn’t have such a REU experience.  What is the minority students’ uniqueness, strength, and weakness?  We had high quality students in this program. When they came they are well prepared. We were concerned about their learning outcome. But they worked really hard. They can catch up. Especially with opportunity we give them. (they value this short time opportunity.) the hispanish student got the first award in research project presention. The second is an African American student. I think they all did a good job. Their presentation scores are pretty close to each other. They are all equally showed up to the test no matte what their backgrounds were.  Have you done any research teaching for undergraduates before?  I had research apprenticeship for many years. Most of them are graduate students. I supervised some of the undergraduate students. They are high school students entering our university. They were four years younger than most of them. They just come out of high school. they didn’t have any preparations. That is a different group,. You cannot do very much with them. Because they are not quite as well prepared. We had done mentoring with them into my own research projects such as forest habitat analysis and assessment, counting birds, using transact method, bird nest searching, catching mice, to keep them on track and interested. For these REU students they are already there. We don’t have to make them interested, they are already. (35:04) 10/18/08.  Can you tell why the high school students could do more than the regular college students since you have two high school students they are doing very well in REU?  That depends on their maturity level. They are 17, 18 years old. The incoming freshman students are 23 or 24 years old. They had done a lot of growing up in college. They know how to taking note, how to study. They can manage their life a little better. They were able to participate the program a little bit better. I think that other part is with REU students, for the most part the collge students are thinking about going to the graduate school. They are interested because they are thinking doing research career. So they are very motivated in doing a program like this. For the incoming freshmen, they are not sure they are even be in a college. Sometimes, they don’t know what their major is, they don’t know what kind of career they might pursue. They might go to different other schools. They might think they will do some other research program than what we have. For the high school students they will not even think about a research career. So It’s mainly introducing them to some possibilities until they finish their four years of undergraduate training. I’ll show you the Anabat detector. It picks the high frequency of the sound, how long they are, how far they are, how close together they are, what speed they are, and show the graphs on the screen of the detector. Their activities are changeable in each season. Mostly it’s a pulse. It shows in a descending line (end at 38:20 and 40:57) 10/18/2008 |
| Anabat 6.0 bat detector |
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### Interview with Dr. Robert Taylor, Dean of Ag

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| Please tell about the REU program since you were the director of the REU program in Washington D.C. | |
| I served as REU director in NSF. This was in 2001. I was able to visit some of the REU sites.  I made site visit to port rico, university of Arizona, and also to Boston \_\_\_college. I would say that those REU sites and our site is comparable in terms of the quality of the students. that we have very high quality of the students. and in terms of the type of the work they are doing here. Our students were doing the cutting edge work. Work at genomics, proteomics (protein related) and other things related to environmental work. And they did some of the cutting edge work in Bandhead forest. Our REU program is high quality as compared to other REU programs at other sites too. Their presentations and posters showed that they have a very high quality as good as the REU students in other universities. Genomics is with the genes, genes in the peanuts. Our high school student did that kind of work. He actually went to Atlanta (win an award).  the REU program requires to recruit certain number of the minority students, female students, of underserved, under-represented student groups. we have more minority students than them. Their program have more of the Caucasian students. even through they have one or three minority students, they have a harder time to find them. I think those minority students think those schools are not so attractive to them as the black schools. They (minority students) feel more at home at Alabama A&M University campus. For the gender, the biological science, there are more women, we have a lot of females in our REU program. The biology does not have problem with females. There are a lot of them over the country. As for mentors, I think we have more of the diverse faculty than other schools, especially those historical white schools. We have more people from foreign countries. (what difference the diverse faculty could make to the REU here? And what difference could the diverse students could make to REU here?) in the other white schools, there are more Caucasian faculties and some of the foreign faculties. And more the previous REU programs are by white schools. We funded another hbcu school in Fort Valley, Georgia. They have more of the minority faculties and also some white faculties. They have a lot of Asian faculties. Generally they don’t find many African American faculties in REU. In fort valley, they do the molecular biology too. Their work is also comparable, they have very good students too. Their students were from all over the place. You know, there are not many black schools have REU program. Right now you have maybe five of them in terms of the REU sites of the country. You might have 130 sites, you know. And maybe five from minority schools. Genomics means map the geno (7:35 missed)  we are comparable with our less resources, less tradition (for what), and they might get better students than we get because of their reputation. Our faculty have to get the research done for paying their salaries. That forces them to find the funds and write the proposals. Just look at the size alone, they are doing pretty good. They brought up ten million dollars a year. the dept of natural resources get 14 million for the last two years. That’s 7 million a year. those are competitive grants. I am not talking about any funding from USDA. These are competitive grant from NSF. Those grant areas are in ecosystem, environmental, water quality, biology chemistry work, and like that, you know. Their publications are around 70 peer reviewed journal publication over a year. that not include not peer reviewed. And the fundings, we have about 70 proposals funded per year over the last three years. The objective of that is to recruit more of the graduate students in the bankhead forest ecosystem programs, those are about burning and peeling (3:09 missed) we’ll give them great training in science, they can also tell other people throughout the country when they get back about our school’s graduate programs. (to help us recruit other students into our program).  when Antonio got his first place award, he did mentioned that he did that research in here Alabama A&M University. We can also ask them to tell the media about our REU program and our university so that more people will know about us. You see it’s high school student. We don’t have high school students in the REU before. That’s the new thing that we are exploring.  thank you. | |
| uniqueness: |  |
| 1. they are working on some publications with the previous mentors even after they left the REU campus. 2. the minority students are the most in this REU program. 3. two high school students are recruited and one of them got first place award in a regional research conference for high school kids in north Alabama. | |