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# A little bit of hands-on practical experience through workshops goes a long way.

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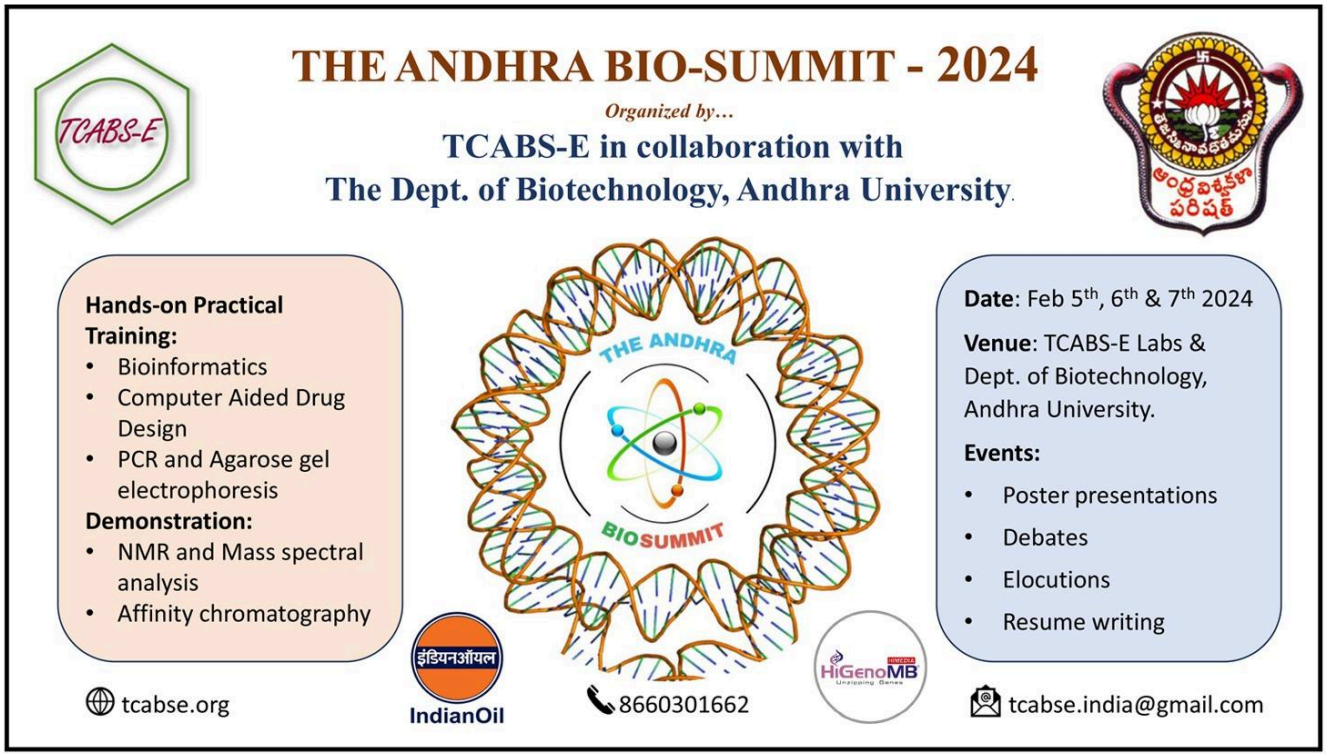


**The Andhra Bio-Summit 2024 official banner.**

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There is a deep need for practical hands-on experience for the Life Sciences students in various colleges and Universities across the coastal Andhra Pradesh (A.P.) state of India. Due to lack of appropriate laboratory skills, many of the postgraduate (P.G.) students start their career with a mediocre salary that is insufficient to meet their daily needs such as food and shelter. Too many advanced sciences P.G. programs have been started in institutions across coastal A.P. but the goal of achieving a reasonable placement in the core field of the job market for the postgraduates still remains as an unmet need for many students. Some of the possible reasons for this situations include, (a) lack of appropriate funding from the government and/or the management team of the institution/university, (b) large number of students per class, sometimes exceeding 60 students per practical session

in the laboratories, (c) discouragement among students that they are not being prioritized in the class and/or laboratories, (d) lack of proactiveness among the students, (e) shortage of faculty, (d) lack of appropriate advanced laboratory training and exposure to the existing faculty, etc.

It is common knowledge that the P.G. is the last chance for any student in his/her life to acquire proper classroom teaching with a skilled professor on the other side of the table. After exiting the education system with a P.G. degree, further higher studies such as doctoral programs are more interactive rather than a classroom basis. On one hand, the administrative higher ups insist on self learning to encourage the P.G. students towards independent speakers/teachers, on the other hand, lack of appropriate teaching/training faculty is only hurting the full competency of the P.G. students. Any changes to be made in such a system cannot be done alone by students nor by the faculty but has to be done by a team including the administrative higher ups and policy makers. If the students face the same above mentioned educational experience at their bachelors level then most of them will be unfit for the P.G. programs irrespective of their scores. For such incumbents, if the universities expect the P.G. students to be independent in learning then it might be a recipe for disaster.

Recently, The Center for Advanced-Applied Biological Sciences & Entrepreneurship (TCABS-E) in collaboration with the department of Biotechnology, Andhra University (AU) organized a 3-day symposium/workshop cluster. The first Andhra Bio-Summit 2024 (ABS2024) was inaugurated on Feb 5$^{th}$, 2024 by the chief guest of ABS2024, Hon'ble Vice Chancellor of AU, Prof. P. V. G. D. Prasad Reddy along with the organizing team members of ABS2024. The goal of this workshop was to train students in Bioinformatics, Computer-aided drug design (CADD) and Polymerase chain reaction (PCR) followed by agarose gel electrophoresis (AGE) hands on with live experimental support including, instrumentation, laboratory space, chemicals and reagents. The students were charged either ₹200 (equivalent to USD 2.4) per workshop or ₹500 (equivalent to USD 6.0) for all three workshops, including the demonstrations, participations in all competitions, etc. Typically a student's daily pocket money is ₹250 per day. So by investing two days worth pocket money, a student can gain hands-on experience in all the areas mentioned above through workshops. Usually one workshop along with a seminar (mostly demonstration) costs ₹500-₹5,000 that puts a lot of financial burden on students and may not provide hands-on practical skills to the participants.

Feedback from the participants of ABS2024 was very positive in the context of learning practical skills in multiple fields for less money investment. More than 300 students benefited from participating in various workshops of ABS2024 for the first time in the coastal Andhra Pradesh state of India. Most of the students expressed their confidence in not only using various Bioinformatics tools and software related to CADD but also PCR and AGE techniques that are critical for research in Life Sciences. Most of the students felt liberated because they did their first hands on PCR and agarose gel electrophoresis, the bare minimum skills that are required in many fields related to Life Sciences in the job market these days. Students were given followup consultation free of cost to learn how the practical skills from ABS2024 were helping them. Almost all of them expressed happiness and most of them were eager to know about the dates for future workshops yet to be organized.

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