

Report from the ICCS-ESCCA Bi-Society Course committee

What is the Bi-Society Education Project?

The Bi-Society Education Project, instigated by Dr. Fiona Craig and rendered possible through a generous grant from the Wallace H. Coulter Foundation (WHCF), is a collaborative effort of the ICCS and ESCCA (European Society for Clinical Cell analysis) to address global education needs in flow cytometry. The main goals - each addressed by a different subcommittee - are to foster collaboration and education across continents, countries and disciplines in flow cytometry (Network and visitor training program committee), the wide distribution of educational resources (E-learning and Advanced Resources committee) and improvement of the practice of clinical flow cytometry (Practical Course committee). These subcommittees are overseen by a steering committee and meet once a year to discuss goals, progress and challenges. Bi-Society Educational Project representatives:

Representatives

ICCS:

Steering Committee:	Fiona Craig & Jeannine Holden
E-learning/Advance Electronic Resources:	David Grier & Mike Keeney
Practical Courses:	Sindhu Cherian & Paul Wallace
International Network / Visitor Training Program:	Shiyong Li & Andrea Illingworth

ESCCA:

Steering Committee:	Claude Lambert & Enrique O'Connor
E-learning/Advance Electronic Resources:	Katherina Psarra & Claudio Ortolani
Practical Courses:	Maria Arroz & Paula Fernandez
International Network / Visitor Training Program:	Jan Gratama & Elizabeth Bernal

The Bi-Society Course steering Committee established the following goals in March, 2014.

- Offer a course providing hands-on experience
- Improving the practice of clinical flow cytometry
- Provide instruction for both the beginner and advanced level
- Combine both didactic and laboratory based sessions.

The Course committee began by compiling a dynamic curriculum, offered to a limited number of participants in order to keep the groups small. The curriculum included a combination of lectures, live data-file analysis performed by faculty and equipment-based wet-labs, the content of which has been shaped by feedback from course participants and faculty. There was a commitment to represent instrument and software from different major companies, in order to give attendees the opportunity to refine their expertise in the context of their usual work environment and to be exposed to a different background experience. Eager to put these ideas into practice, the venue and date for the first Course was held in conjunction with the ESCCA Meeting taking place in Lisbon, Portugal, September 2014. This was to take advantage of the faculty available at the meeting and to provide for maximum awareness of the Course. After formal approval by the ESCCA Board and Bi-Society Steering committee was granted, Maria Arroz, who lives in

Lisbon and was president of the ESCCA organizing committee, began working on the organizational issues associated with the course.

Facts and numbers of the 1st Practical Course



The final program for this two and half day, “Bi-Society Practical Course”, offered two different tracks; a choice between a “High Quality Data Generation” wet-lab and a “Practical Data Analysis” computer based lab. Both curricula shared daily introductory lectures on fundamental topics about instrumentation, data analysis as well as an advanced disease specific discussions focused on leukemia and lymphoma. At the end of each day, faculty and students met for either an informal question-and-answer sessions.

At registration, attendees were surveyed about their professional background, level of experience, expectations and topics they hoped would be addressed. Prior to the course, faculty were informed about the results of each pre-course survey to help them optimally prepare and respond to the needs of the participants.

Twenty students, originating from 14 countries from Europe, Asia and the Americas enrolled. This was the first course in flow cytometry for 75% of the students. Most (75%) worked in a clinical laboratory, the rest in a research setting. Twenty five percent were laboratory directors and the remainder medical technologists. Experience levels ranged from less than 2 years -12%; 2 – 5 years – 50%; and greater than 5 years – 38%. In other words, we had a very diverse and intercultural student body, which was taught by an impressive faculty of 14 from 9 different countries.

A post-course survey confirmed the importance of the small informal group setting, as this was the most cited favorite aspect of the course. This created an informal atmosphere, conducive to asking questions and interaction with faculty and students. The practical aspect of the course was repeatedly mentioned as very positive, suggesting lectures should be reduced with more emphasis on computer and wet-lab training. The biggest complaint was that participants could not take both tracks! And all of participants said they would recommend the course to their colleagues.

Challenges

We had hoped for 30 - 40 attendees, but only enrolled 20. Possible explanations were that (i) moving so quickly with the first course, left us with little time for advertising and (ii) the cost, which was deemed too high by a third of the attendees.

A challenge of the course organization was the setting-up of the cytometers (without blowing all the fuses of the congress building) and getting all the needed reagents and supplies in place for the “hands-on” wet-labs. This task would not have been possible without the generous support of the instrument manufacturers who provided equipment and reagents, plus engineers to set up the instruments and technical specialists to help run them during the course.

The 2nd Bi-Society Practical Course



The second course took place in February 2015, in Clearwater, Florida, at the Sand Key Resort – a venue with large rooms (and doors) to be equipped with two flow cytometers, as well as a dozen workstations for data analysis.

In response to feedback of participants from the first course, the two tracks were merged and all sessions were held twice, in order for all students to participate in both tracks while keeping the size of the groups to a minimum. To maximize hands-on experience in data analysis, the format was switched from live analysis by faculty, to data analysis by students. For this scope, individual workstations were equipped with different data analysis software and a collection of data-files provided by faculty installed on each system. Small groups of participants gathered around computers featuring their favorite software and were assisted in analysis by the faculty present. Lecture time was reduced to a short introduction about the topic; with many topics accompanied by workbooks to aid students in their analysis. In addition, we wrapped the day up with round table discussion on topics selected by the students.

Thirty students, mostly from the US, registered for the course. Based on the registration survey-results, this was the first clinical flow cytometry course for 33% of the attendees; most (75%) participants worked in a clinical setting and the rest were from research or industry. Sixty percent were medical technologists, 17% laboratory managers, 8% laboratory directors and the rest did not specify their background. Interestingly, 92% had more than 5 years of flow cytometry experience.

Ten faculty from 6 countries participated in the second course. All arrived a day earlier to organize the course infrastructure including the getting the computers and the wet-labs ready. Both Beckman Coulter and BD Bioscience participated in this, as well as the first, course and once again provided outstanding support to the course.

The format of the course, with hands-on wet-and dry-lab modules, as well as the small group atmosphere and one-on-one exposure to experienced teachers were again the most favorite aspect of this second course. To improve the efficiency and use of time, a more detailed organization of both of the labs was suggested as beneficial. Despite the praising of the practical aspects of the different labs, and interestingly, in terms of efficiency, the lecture-format was rated to be by far the best by the students.

Lessons learned

From experimenting with different course formats as lectures, live-analysis by faculty and hands-on analysis by students – we have learned that each format has its merit. Lectures are the easiest way to deliver a maximum of information but only when faced with a mouse pad and real data do the questions, insecurity's as well as aha!-effects really come up. To do so, however, some participants needed an initial introduction to analysis strategies. Hence a mix of all these formats might be the optimal.

For faculty, changing from showing analysis of familiar data with familiar software, to assisting students with data from another lab using new and unfamiliar software, took a while to get used to and taught us to be more prepared with software and each others cases on the next day.

Generally, discussions were livelier in smaller groups – the format of round-table discussions therefore proved more fruitful than the question-and-answers sessions for the entire group. Pre- and post survey of the attendees proved to be a valuable instrument to adapt the courses to the interest of students.

Future plans

Next to further refining and developing the courses, two aspects that need tackling are becoming financially self-sustainable and identifying regions outside Europe and the US to address global educational needs.

We are working on these!

Thank you's

First and foremost we are much obliged to all the participants of the last two courses for their interest and active participation, as well as helpful suggestions for future improvement. The course would not have been possible without the generous help of industry with equipment (Beckmann Coulter, BD Biosciences), reagents (BD Biosciences, Beckman Coulter, Biolegend, The Binding Site, Thermo Fischer) and software (Beckman Coulter, BD Biosciences, Cytognos, De Novo Software, Verity Software House), as well as their excellent technical assistance by their on-site staff. The faculty and application specialists are thanked for their dedication to the students and flexibility in responding to the requests of the course organizers.

Elizabeth Phillips and Adam Kohn from SPLtrak, are thanked for their invaluable organizational assistance.

Our sincere gratitude goes to the Wallace H. Coulter Foundation for funding the Bi-Society Educational Project. And lastly, I would like to thank the members of our committee, Maria for pulling the first course off, Sindhu for taking the organizational lead and, Paul for his engagement with the wet-labs.

Students at work:

For further information regarding future and past courses: www.cytoed.org

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