

FAOBMB EDUCATION COMMITTEE REPORT PART I For the year 2021

By Gracia Fe B. Yu

IUBMB-FAOBMB-CBSL VIRTUAL EDUCATION SYMPOSIUM July 30, 2021

Background

The International Union of Biochemistry and Molecular Biology (IUBMB), the Federation of Asian and Oceanian Biochemists and Molecular Biologists (FAOBMB) and the College of Biochemists of Sri Lanka (CBSL), conducted the 1st Virtual Education Symposium themed “The ‘New Normal’ Biochemistry and Molecular Biology Education”, on the 30th of July 2021.

In response to the current challenging times of uncertainty and postponement of learning activities, this event was planned to provide the participants with a much-needed opportunity to explore more creative, innovative, and interactive ways of teaching and learning in the ‘new normal’. The term ‘new normal’ was coined during the COVID-19 pandemic where unforeseen changes occurred in all fields of life including education, requiring adjustments to efficient delivery of content with minimal in-person activities. The first FAOBMB virtual BMB education aimed to identify gaps, challenges and ways forward for effective delivery of BMB curricula.

The programme of the symposium comprised three sessions. The first session composed of the keynote speech and the plenary lectures. The second session was conducted as four parallel breakout sessions that culminated in the third session. Although the symposium was a virtual event, the activities were conducted with the in-person participation of members of the organizing committee and the service provider at Jaic Hilton Residencies, Colombo which was the symposium venue.

IUBMB-FAOBMB-CBSL
VIRTUAL EDUCATION
SYMPOSIUM 2021

**“The ‘New Normal’
Biochemistry and Molecular
Biology (BMB) Education”**

**FREE
REGISTRATION**

**Innovative and creative
techniques in BMB education
in the ‘New Normal’**

Identifying gaps and challenges

- Large classes
- Teaching labs
- Assessments
- Student perception

The way forward

Click here to Register

**FREE
REGISTRATION**

<https://bmbed2021.asiatours.lk/>

SAVE THE DATE

**30
JULY
2021**

www.collegeofbiochemists.lk

PROGRAMME
Opening Ceremony and Plenary Session

IUBMB – FAOBMB – CBSL - Virtual Education Symposium 2021 Program “The ‘New Normal’ Biochemistry and Molecular Biology (BMB) Education” 30th July 2021 0700 – 1400 IST (Indian Standard Time)		
	OPENING CEREMONY	
0700 – 0730 0930-1000 (PHL) 0930-1000 (TW) 1030-1100 (JP) 2130-2200 (USA) 11:30 – 24:00 (AU)	Opening Remarks	PROF. ANDREW WANG (TW) IUBMB President PROF. AKIRA KIKUCHI (JP) FAOBMB President PROF. SHARMILA JAYASENA (SL) CBSL President UNIVERSITY OF COLOMBO, SRI LANKA PROF. CHANDRIKA WIJERATNE (SL) VICE CHANCELLOR, UNIVERSITY OF COLOMBO, SRI LANKA PROF. SUDANTHA LIYANAGE (SL) VICE CHANCELLOR, UNIVERSITY OF SRI JAYAWARDENAPURA, SRI LANKA
0730-0735 1000-1030 (PHL)	Introduction of the Keynote Speaker	PROF. GRACIA FE B. YU (PH) University of the Philippines Manila, Philippines
0735 – 0815 SL 2205-2245 (USA)	Keynote Speech: <i>The Push We Needed: How the Global Pandemic Forced us to Reconsider How we Deliver a BMB Curriculum</i>	PROF. DANIEL R. DRIES (US) Juniata College, Pennsylvania, USA
	Master of Ceremony	
	SESSION 1 PLENARY SESSION Innovative and creative techniques in teaching and learning BMB in the ‘New Normal’ Chairpersons: Prof. Sheila Nathan (MY)	
0815 – 0845	<i>Teaching Laboratory activities in</i>	PROF. GABRIEL HORNINK (BR)

2345 – 0015 (Brazil)	<i>transformation: adaptations during and after COVID-19</i>	Federal University of Alfenas, Brazil
0845 – 0915 2315 -2345 (USA)	<i>The 10 Best practices for taking experiential learning online</i>	PROF. GLENDA GILLASPY (US) Virginia Tech, USA
0915 – 0945 2345 -0015 (USA)	<i>“Python and Jupyter Notebooks in BMB Teaching and Research”</i>	PROF. PAUL CRAIG (US) Rochester Institute of Technology, NY, USA
0945-1015 1415 – 1445 (AU)	<i>Innovative and creative techniques in BMB education in the new normal</i>	PROF. ELIZABETH JOHNSON (AU) Deakin University, Melbourne, Australia
1015 – 1045 1245- 1315 (SG)	<i>Making online learning more fun and more effective through peer instruction</i>	PROF. THILO HAGEN (SG) National University of Singapore
	Introduction to Session 2	
1045-1100	HEALTH BREAK	NZ Video/ Video on CBSL/SL

Inauguration

The symposium was inaugurated at 7:00 a.m. local time in Colombo, with the participation of many eminent dignitaries from FAOBMB and Sri Lanka. Professor Andrew Wang, the IUBMB immediate Past President delivered the welcome address, which was preceded by playing the national anthem of Sri Lanka. FAOBMB President, Professor Akira Kikuchi, offered his congratulatory message which was followed by the address of the President of CBSL, Professor Sharmila Jayasena. Professor Jayasena while welcoming the participants, briefly outline the organizing activities related to the symposium. Senior Professor Chandrika Wijeyaratne, Vice Chancellor, University of Colombo and Senior Professor Sudantha Liyanage, Vice Chancellor, University of Sri Jayawardenepura addressed the gathering as Guests of Honour.

Keynote Speech

Professor Gracia Fe B. Yu, Education Committee Chair-FAOBMB, introduced the keynote speaker Professor Daniel Dries, Juniata College, Pennsylvania, USA who delivered an eye-opening and captivating talk titled “The push we needed: How the global pandemic forced us to reconsider how we deliver a BMB curriculum”.

Session 1

The theme of this session was “Innovative and creative techniques in teaching and learning BMB in the ‘new normal’” This session was chaired by Professor Sheila Nathan, General Secretary-FAOBMB.

The first plenary talk was delivered by Professor Gabriel Hornink, from Federal University of Alfnas, Brazil who discussed “Teaching laboratory activities in transformation: adaptation during and after COVID-19”. He expressed that there are activities that can be conducted with a focus on laboratory practical activities, using animations, simulations and interactive videos embedded in the teaching platform.

Professor Glenda Gillaspay from Virginia Tec, USA delivered her plenary lecture on “The ten best practices for taking experiential learning online”, where she elaborated on the Research and Extension Experiences for Undergraduates (REEU) program conducted at her university where it had been originally designed, implemented and adapted to deliver an at-home research experience that maintained student engagement and mentorship, and a shared sense of community.

Professor Paul Craig joined from the Rochester Institute of Technology, USA to speak on “Python and Jupyter note books in BMB teaching and research”. He explained that Jupyter notebooks are a powerful tool for teaching and research that enable instructors and students to move beyond spreadsheets and web applications for data analysis, plotting and forecasting.

“Innovative and creative techniques in BMB education in the new normal” was the title of the plenary lecture delivered by Professor Elizabeth Johnson, Deakin University, Melbourne, Australia. She highlighted that teaching science needs to address the twin challenges of authenticity and engagement in an increasingly digital world, where the learning design and mode of delivery should be selected to match the outcomes intended through intentional curriculum design.

The final plenary speaker of the symposium was Professor Thilo Hagen from the National University of Singapore who discussed “Making online learning more fun and effective through peer instruction”. He reiterated that team-based learning has numerous advantages and is an especially useful approach to engage students in an online setting. He shared his experience with implementing team-based learning and peer instruction using the Learning Catalytics courseware.

Session 2- Breakout sessions: “Identification of gaps and challenges in ‘new normal’ BMB education”

The highlight of the symposium was the session 2 where participants who were pre- registered for a selected track of their choice, gathered in breakout rooms to discuss different aspects of BMB education. The four parallel breakout sessions took off with mini introductory talks that paved the way for the discussions. For each breakout session, there were 2-4 facilitators who led the discussions and identified contributors and other participants actively contributed to identify the gaps, challenges and ways forward for each aspect of BMB education. Rapporteurs were appointed to record and take down notes for further processing.

**SESSION 2 PROGRAM:
PARALLEL SESSIONS (Breakout Rooms)**

1100 – 1230	SESSION 2 PARALLEL SESSIONS (Breakout rooms) “Identification of gaps and challenges in ‘new normal’ BMB education”			
1330- 1500 (PH)				
	Introduction to Session 2 (MC)			
	Large classes	Teaching Labs	Assessments	Student perception
	Link 2: Mini Introductory Talk <i>Prof. Ban Hon Kim Kenneth, (SG)</i> Faciitator: Contributors:	Link 3: Mini Introductory Talk <i>Dr. Amaal Abrahams (SA)</i> Faciitator: Contributors:	Link 4: Mini Introductory Talk <i>Prof. Rasika Perera (SL)</i> Faciitator: Contributors:	Link 5: Mini Introductory Talk <i>Dr. Crist John Pastor (PH)</i> Faciitator: Contributors:
1230- 1245	<i>HEALTH BREAK</i>			

Breakout session 1 – Teaching large classes

Professor Shannon Au, (Hong Kong), Professor Joon Kim, (Peoples Republic of Korea) and Professor Sugandhika Suresh, (Sri Lanka) were the facilitators of the session. Professor Suresh introduced the mini speaker and the facilitators of the session to the audience and set down the ground rules for the procedures of the session. Prior to the mini introductory lecture, a poll was conducted to determine whether the participants had experience in teaching virtual large classes. The results revealed that 86% of the participants had such experience. Professor Ban Hon Kim Kenneth from the Yong Loo Lin School of Medicine, Singapore delivered the mini introductory lecture to kick-start the procedures of this breakout session. He briefly discussed possible approaches to handling virtual large classes. Following the talk, the facilitators led the discussion to elicit responses of the participants.

The discussion revolved around four questions.

- i. How to keep the learners interested and focused during a virtual large class
- ii. How do we ascertain that the learners in large classes are interested and focused?
- iii. How to motivate the learners to learn actively by interacting and contributing **during** a large class
- iv. How to motivate the learners to learn actively **after** a large class

There was a very active participation from all the participants and they expressed their opinions regarding the posed questions and attempted to figure out the gaps, challenges and ways forward. Everyone agreed that teaching large classes online which could have more than 500 students at a time is quite challenging. This group was further divided into 10 sub-breakout rooms where more in-depth discussions were held in much smaller groups. Table 1 summarizes the details of the discussion. The discussions were followed by a demonstration by Professor Thilo Hagen who conducted a hands-on peer teaching activity session for the participants. He demonstrated how peer teaching employed productively during a large class teaching.

Table 1 – Brief summary of the discussion in the parallel session on teaching large Class

Gap/Challenge	Ways forward/Suggestions
Lack of interest and focus during virtual large classes	<ul style="list-style-type: none"> • Using animated contents, videos and attractive u • Giving small breaks during the class. • Giving the lecture note one day prior to the class and asking the students to come prepared • Giving a question related to real life scenarios to be answered in breakout groups • Asking questions by name • Having a Teaching Assistant/Demonstrator present during the class
Inability to ascertain whether students are attentive and motivated during the class	<ul style="list-style-type: none"> • Getting the students to switch the cameras on and answer questions during the lecture • Encouraging students to ask questions verbally or in the chat, and making sure that answers are given during a lecture break or after • Using annotate function and interactive software
Inability to check whether students are motivated to learn after the class	<ul style="list-style-type: none"> • Conducting tutorials and small group discussions • Getting all the students to speak during the tutorials • Uploading lesson materials to LMS

Breakout session 2 – Teaching Labs

The second parallel session focused on teaching labs online. The facilitators of the session were Professors Yang Mooi Lim (Malaysia), Dong-Yan Jin (Hong Kong) and Dr. Tharanga Thoradeniya (Sri Lanka). A poll conducted, reflected that 78% of the participants in this breakout session had conducted practical classes online.

Dr. Thoradeniya introduced the facilitators of the session and proceeded to invite Dr. Amaal Abrahams, University of Cape Town, South Africa to deliver the mini

introductory lecture. She explained that traditionally, biochemistry and molecular biology at the undergraduate level consisted of a lecture followed by a hands-on practical component, where theoretical content and concepts into the practical is considered essential in developing applied, analytical and problem-solving skills which are all essential attributes of a science student. She stated that many academics, viewed the forced transition from on-sight to online teaching due to the pandemic as an interim measure. Dr. Abrahams elaborated that even though it is now more than one and half years since the onset of the COVID-19 pandemic, students continue to have limited or no access to laboratory facilities.

The participants then engaged in discussing the following points.

- i. How are the teaching labs different to other modes of teaching?
- ii. How to keep the learners interested and focused during a virtual/remote teaching lab?
- iii. Are there innovative solutions you have introduced to your classes esp. in resource limited setting?

It was unanimously agreed that practical sessions cannot be completely replaced by online teaching sessions. Since it is essential to get hands-on experience in certain area of BMB curricula, teaching labs is considered the greatest challenge among online teaching activities. Therefore, virtual labs differ significantly from other modes of teaching. It was expressed that certain components can be effectively taught online leaving room for essential components to be handled in on-sight laboratory teaching. Participants discussed these points were in sub-breakout rooms. The main points identified are summarized in Table 2.

Challenge	Ways forward/suggestions
Lack of an ideal virtual lab	<ul style="list-style-type: none"> • Conducting live practical sessions from the lab for students to join online and participate actively • Having prerecorded practical sessions for students to go through • Using different software, AI and apps
Inability to ascertain whether students are attentive and motivated during the class	<ul style="list-style-type: none"> • Having live Q and A discussion during the virtual lab • Giving assignments on the practical sessions
Identifying innovative methods of conducting online labs	<ul style="list-style-type: none"> • Getting students to conduct basic practical sessions using improvised ingredients from home

Breakout session 3 – Online Assessments

The third parallel session dealt with the challenging issue of conducting online assessments in BMB. Professors Tuangporn Suthiphogchai (Thailand), Wen Jiang, (China) and Sharmila Jayasena (Sri Lanka) were the facilitators for this session.

Professor Jayasena introduced the mini introductory lecturer of the session Professor Rasika Perera, University of Sri Jayewardenepura, Sri Lanka who set the stage for the discussion by emphasizing the importance of assessing knowledge, skills as well as attitudes regarding BMB education. Professor Perera highlighted that assessments are a major force that drives learning. He stressed that the challenging task was to assess the competencies of students online in a credible manner.

With the active participation of facilitators and participants, the group discussed the following points regarding BMB assessments online.

- i. How to assess whether the learning outcomes of the lesson are achieved
- ii. How to assess the depth of learning
- iii. How to ensure the transparency and credibility

The participants of this sessions stressed that meticulous measures are needed in place to ensure the credibility of online assessments. Resources and infrastructure facilities should be available for the students to complete examinations online. The participants deliberated on these in smaller groups in sub-breakout rooms.

Then main findings of the session 3 are shown in Table 3.

Gap/Challenge	Ways forward/Suggestions
Ensuring learning outcomes are achieved	<ul style="list-style-type: none"> • Having structured viva • Giving open-book assessments • Focusing on formative assessments • Using google forms immediately after a class
Achieving desired depth of the curriculum	<ul style="list-style-type: none"> • Having open book exams testing deeper level of understanding/ questions requiring critical thinking • Software to monitor progression of learning
Ensuring credibility / preventing cheating in the online assessments	<ul style="list-style-type: none"> • Using Webcams positioned to view student environment • Crosschecking the authenticity via interview/ chat following the online exam

Breakout session 4 – Student perception

The most anticipated session of the symposium, without doubt, was the parallel session on student perception regarding online teaching of BMB. This is the first time such a session has been dedicated to get an input from student participants during an education symposium. This session was conducted entirely by undergraduate and graduate students. Dr. Indika Neluwa-Liyanage and Miss Ghajhane Vigneswaran, University of Sri Jayewardenepura, Sri Lanka and Mr. Minul Doluweera, Mr. Asel Jatunarachchi and Mr. Harindu Kiriheena from University of Colombo, Sri Lanka were the facilitators for this session. Dr. Indika Neluwa-Liyanage invited Professor Crist John Pastor, Philippine Normal University, Philippines to deliver the mini introductory lecture of the session.

He explained the importance of understanding student perception especially in virtual education. The key for active student engagement is their positive attitudes towards learning which is directly affected by student perception. The 'T pach model' related to content, pedagogical knowledge and technical knowledge was used by the speaker to emphasize the importance of sound technical knowledge of educators and the balance between pedagogy and technology. The teacher being available to answer students' queries and interact with them through various virtual platforms and setting tasks to students which involve interaction with their family members were discussed as vital requirements during the new normal BMB education. The team held the discussion to address the issues mentioned below.

- i. How to motivate students during an online class
- ii. How to improve critical analytical skills
- iii. Different virtual platforms for online teaching/learning

As an ice-breaker, a poll was conducted which revealed that the friendly encouraging environment created by the virtual setting to ask questions by any student is an advantage of online learning whereas lack of motivation in students during online lectures was identified as a major challenge. A role-play was staged to depict the flaws of the current scenario faced by both teachers and students and this was an eye-opener for discussions. There were sub-breakout rooms where participants continued the discussion in smaller groups. The main findings of the parallel session on student perception are given in Table 4.

Gap/ Challenge	Ways forward
Lack of motivation by students	<ul style="list-style-type: none"> • Using a variety of modalities to teach (role play, drama) • Conducting small group discussions and breakout rooms to cut through the barrier of fear to engage
Selecting the best virtual platforms used world over to teach BMB	<ul style="list-style-type: none"> • Zoom platform (due to its user-friendly interface, larger audience capacity and breakout room availability) • Google-meet and Microsoft-teams • Apps like Kahoot, virtual Universities and other social media features

Session 3 – Wrap up session on “Making BMB education more effective in the ‘new normal’ – The way forward”

SESSION 3 PROGRAM

	SESSION 3 “Making BMB education more effective in the ‘new normal’ – The way forward” Moderator: Dr. Tharanga Thoradeniya	
1245 – 1345	Link 1: Outcome presentations by facilitators from the 4 groups to present (8-10 min each)	
1515-1545 (PH)		
1345 - 1400	Closing Remarks	Prof. Sugandhika Suresh

Key findings of the of the Session 2 were summed up and presented in this final session for the day. Dr. Tharanga Thoradeniya chaired the session. The chairperson invited Professors Sugandhika Suresh, Yang Mooi Lim, Sharmila Jayasena and Dr. Indika Neluwa-Liyanage to present the essence of findings from the respective breakout sessions. Each speaker highlighted the identified challenges and the suggested ways forward for BMB education in the ‘new normal’. Professor Sugandhika Suresh delivered the closing remarks of the symposium. Professor Suresh presented a gist of the discussions held during the conference and continued with the vote of thanks on behalf of the Organizing Committee and the College of Biochemists of Sri Lanka. The IUBMB – FAOBMB – CBSL - Virtual Education Symposium 2021 titled “The ‘New Normal’ Biochemistry and Molecular Biology (BMB) Education” was thus successfully conducted.

Participants

There was an overwhelming participation for the symposium from all continents of the world. The total number was 445 from 26 countries. In addition to this number, many participants have joined the symposium from a single venue/device making the actual number of participants more than 500.

List of participant countries

1. Sri Lanka	2. India	3. USA
4. Canada	5. Brazil	6. Australia
7. South Africa	8. Philippines	9. Taiwan
10. Hong Kong	11. Peoples Republic of Korea	12. Singapore
13. China	14. Malaysia	15. Japan
16. Germany	17. New Zealand	18. Thailand
19. Qatar	20. Pakistan	21. Myanmar
22. Mongolia	23. Vietnam	24. Indonesia
25. BAngladesh	26. Nigeria	

SYMPOSIUM EVALUATION :

1. How do you rate the overall organization of the Symposium?	Excellent – 78% Good - 21.3%
<ul style="list-style-type: none">• The regular email communication leading up to the meeting was extremely helpfull like all the speakers.• The topic is very timely.• Superb symposium• Great, smooth and professional conference organization.• Great work	
2. Were you able to gain new and/or beneficial knowledge about BMB Education in the new normal by participation in the symposium?	Yes - 95% Somewhat - 5%
<ul style="list-style-type: none">• I was encouraged to reconsider new ways to focus on student learning and active learning in the classroom• Very useful• Amazing• Provide more beneficial symposium• The symposium was definitely relevant in he new normal• It is very important• Yes, available and open-source computational tools ave been shared as well	
3. How would you state the opportunity available to interact and network with other participants:	Excellent. - 59.0% Good - 29.5% Adequate - 9.0% Lacking - 0.5%
<ul style="list-style-type: none">• super duper• paticipative• enjoyable• Breakout sessions are very good• There is a focus group discussion in the breakout session• It's good to have interaction with others to gain new insights	
4. Symposium duration event	Adequate - 88.8% Too short. - 7.5%
<ul style="list-style-type: none">• Time duration good• Congratulations for the well-planned and amazing• Give more time on seminar like this• Keep it up• Just enough to make it	

5. Which session did you like the best?	Keynote - 30.4% Plenary - 40.5% Session II - 22.8% Session III -
<ul style="list-style-type: none"> • Dr. Dries really challenged me to consider my thought and attitudes in teaching • Got chance to interact • Informative • Sharing of experiences • Breakout sessions good 	
6. Why did you attend this symposium	
<ul style="list-style-type: none"> • To be updated on the practices in Teaching Science and find solutions to problems during online classes • To have different perspective in online teaching • To improve knowledge in BMB • BMB Education is my prime responsibility • Gain new insights 	
7. Were your expectations met?	Yes - 92.5% Somewhat – 7.5%
8. Additional comments/suggestions for further improvements	
<ul style="list-style-type: none"> • Thank you for the well-organized event! • All in all excellent • Thank you • Observe time management • Provide a copy of the presentation used by speakers • Overall, it is a great opportunity to attend the symposium perhaps it would be good to have more time for Q&A 	

ORGANIZING COMMITTEE

Prof. Gracia Fe Yu
Overall Organizing Committee
Chair, FAOBMB Education Committee

Professor Sharmila M. T. Jayasena
Organizing Co-Chair
President, CBSL
University of Colombo

Dr. Tharanga Thoradeniya
Organizing Co-Chair
Vice President, CBSL
University of Colombo

Professor T. Sugandhika Suresh
Organizing Co-Chair
University of Sri Jayewardenepura

Dr. K.D.K Peshala Kumari
General Sir John Kotelawala Defence Unive

Dr. Indika Neluwa-Liyanage
University of Sri Jayewardenepura

Ms. Miruna Rabindrakumar
Nsbm Green University

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University of Sri Jayewardenepura

Mr. Samantha Bandara
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President-Elect CBSL
University of Sri Jayewardenepura

Prof. Rasika Perera
University of Sri Jayewardenepura

Prof. Usha Hettiaratchi
University of Sri Jayewardenepura

Dr. Niroshima Withanage
University of Sri Jayewardenepura

Dr. Banukie Jayasuriya
University of Sri Jayewardenepura

Dr. Udaya Wijesekara
University of Sri Jayewardenepura

Dr. Sanath Mahawithanage
University of Sri Jayewardenepura

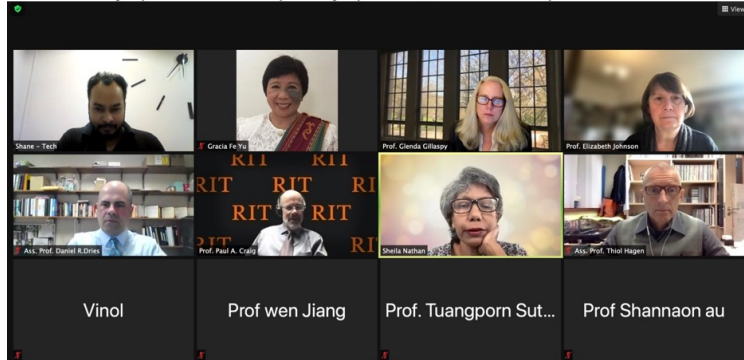
Dr. Anoja Attanayake
University of Ruhuna

Dr. Sawrna Hapuarachchi
University of Colombo

Dr. Kalpani Ratnayake
CINEC Campus

Pictures:

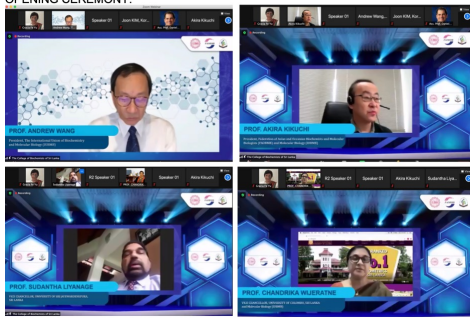
Pre-Virtual Symposium with the plenary speakers, mini lecture speakers and moderator



Post virtual Education Symposium: Thumbs up from the organizers



OPENING CEREMONY:



KEYNOTE SPEAKER

Leveling "Preparedness": Residential Experiences

- Internet access and reliability
- Quiet places to study
- Athletics, extracurricular activities, campus job
 - Responsibility, schedules
- Services for health needs
 - Physical, mental, and emotional
- Reliable access to safe housing, food
- Can focus on self

Green, K. and Andrews, T. C. (2021) J. Coll. Sci. Teach. In press

Chemistry & Biochemistry

Junata College



Chromatography

Ascending chromatography technique on paper.

Select the group of equipment required for the first step of the technique.

Make even applications and limit the volume of sample loaded into the capillary to 1/3 of the capillary.

Unifal UFRGS

<https://www.bbc.br/unifal/visualizar/Material.php?idMaterial=1136>

Profa. Vera M.T. Trindade

"Perception"

the ability to see, hear, or become aware of something through the senses

a belief or opinion, often held by many people and based on how things seem

awareness of the elements of environment through physical sensation

quick, acute, and intuitive cognition : **APPRECIATION**

Towards improving large class teaching: (2) extrinsic motivation

	Examples	Usage
Punishment	Attendance/ Participation marks	Summative grades/ Exam entry criteria
Reward	Badges/ Leaderboard	Gamification

Early Challenge	Why Research/Supports
How do we make online classes more fun and less boring so that they would be to gain your attention?	
Are they actually learning?	
Students are missing from one year to another 20% of year	Students participation - not satisfactory
Affects quality of the skills of the production more and more scientific skills	Students who understand
Others affect engagement	Need to get more students to produce classes - not all students - depending on student work being done
How do we consider equal opportunities then?	Course work opportunity, select other subjects, flexible accommodations, students' comprehension with virtual classes

QUESTIONS AND CONCERNS

- How will this affect my pedagogy?
 - Active Experimental learning - students learn by doing (Doh, 1984)
 - Vygotsky's Social constructivism (Vygotsky, 1978)
- How can I promote group work during practical sessions?
- How can I develop that human connectiveness with my students?
- How do I measure student engagement? Data analysis enough?
- Assessment integrity

Go to <https://learninganalytics.com/demo>

Type First and Last name (optional) → Enter Email Address → Click on Register → Click on

learning analytics

Select name

Warning: You will not be able to change your email address

Enter the name of your team, field

