

# General Meteorology: One course and three delivery modes, is one of them the best?



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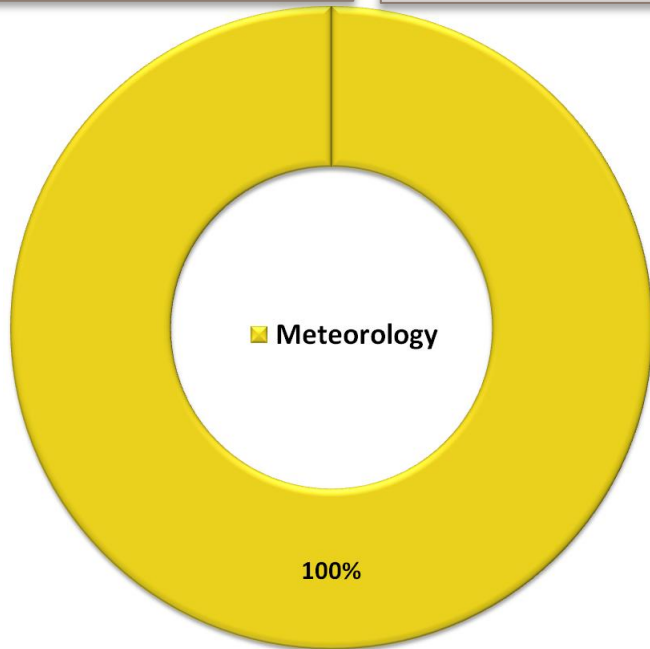
## Survey questions and results

# 1. AUDIENCE

## SYNCHRONOUS

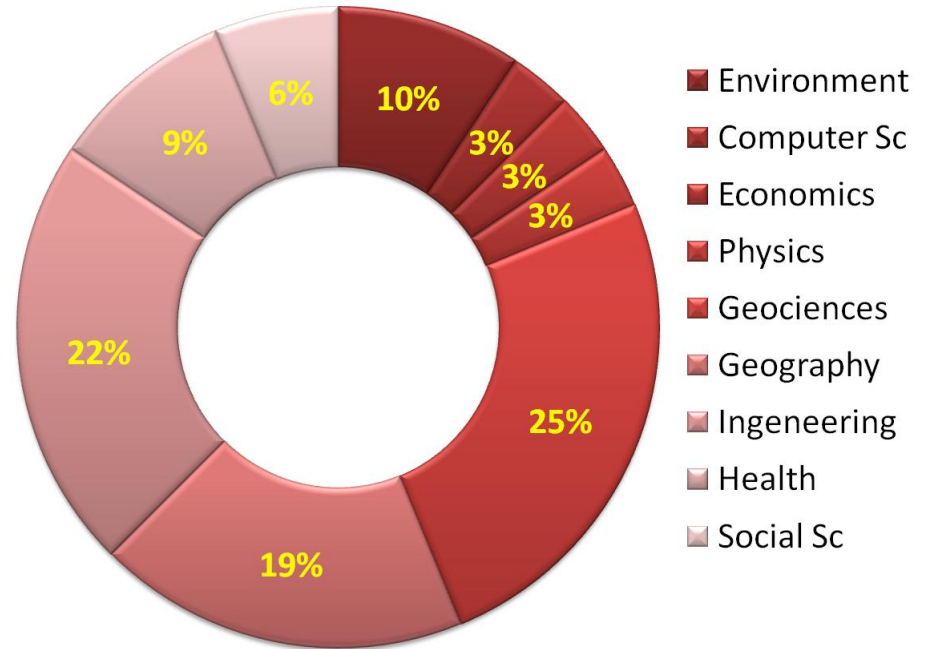
FACE TO FACE

VIRTUAL



Undergraduates and beginners  
(Our survey is based on 21 answers from virtual mode course of 46 students)

## ASYNCHRONOUS



The group consists of 60 students of both graduate (15 answers) and undergraduates (17 answers)

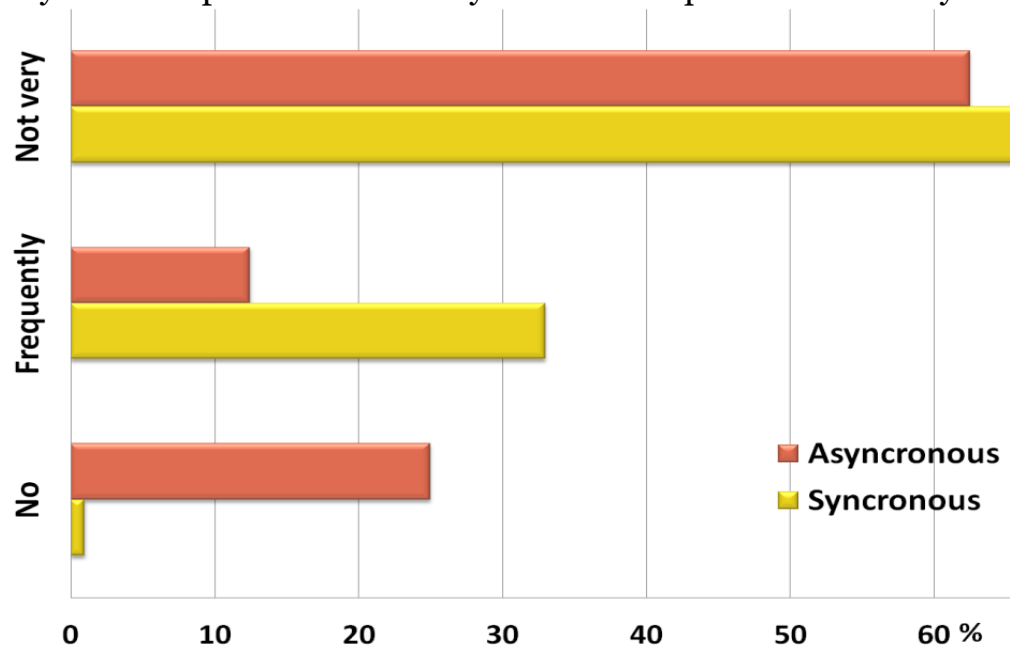
## 2. Technical Issues



### Did you have connectivity difficulties?

Online courses can be highly affected by technical issues. We asked about connectivity. Only 34% of the synchronous GM group had frequent connection difficulties, hence 95% of the students connected to more than 50% of Zoom classes. About 20% were not able to attend on some occasion due to private matters.

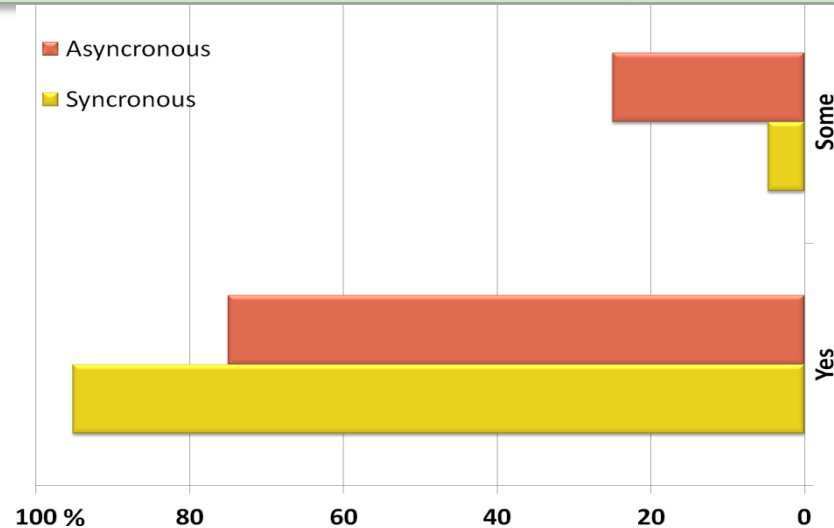
Asynchronous courses have the advantage of selecting the time of day for connection, which can avoid hours with high internet traffic, so many had very few or no problems and only 12% had frequent connectivity issues



## 2. Technical Issues



### Could solve issues on access or download/upload texts/activities?

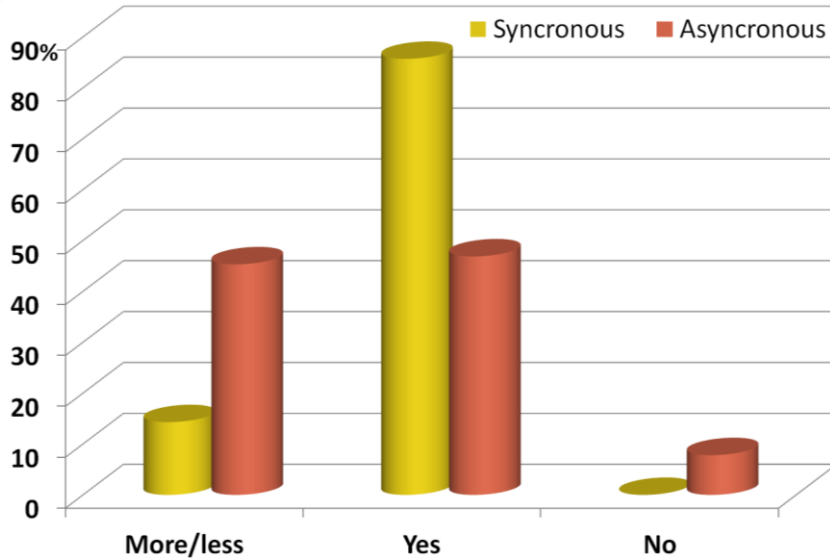


Zoom sessions had also to delivery modes. Half of the lessons were live and recorded for later access, so they included all questions or comments of the live meeting. The other half were recorded previously, hence no student intervention, and in the live meeting all questions/doubts/comments were addressed but not recorded. All students confirmed the importance of recorded lessons, specially in case of absence or for solving activities. However prerecorded lessons, with no interruptions, are better for studying. In general they had no problems downloading recordings.

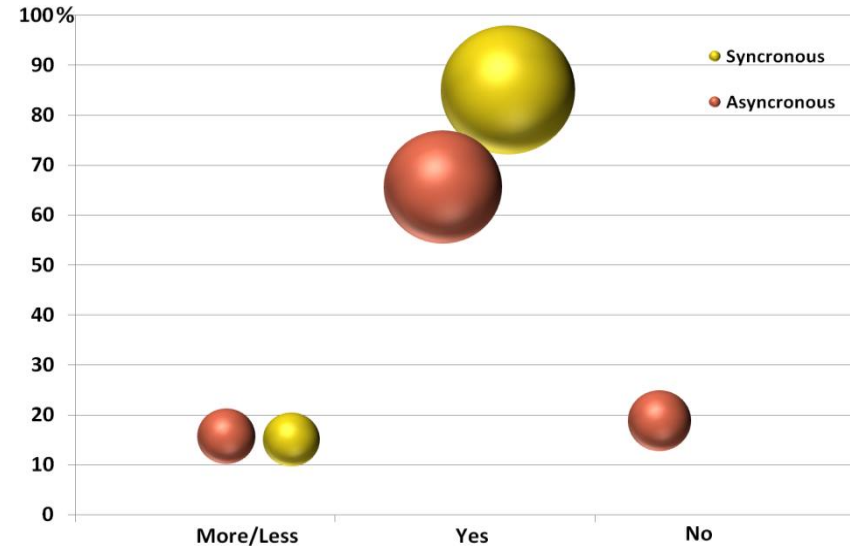
Asynchronous GM students access the Moodle platform and can download different texts and solve activities on line or uploading files with solved problemes or answers to questions. Most students dont have previous Moodle experience but 75% of students have no problems and the rest get to solve them easily.

# 3. Comprehension

Were you able to understand lectures, texts, activities?



Were you able to clear all your doubts?



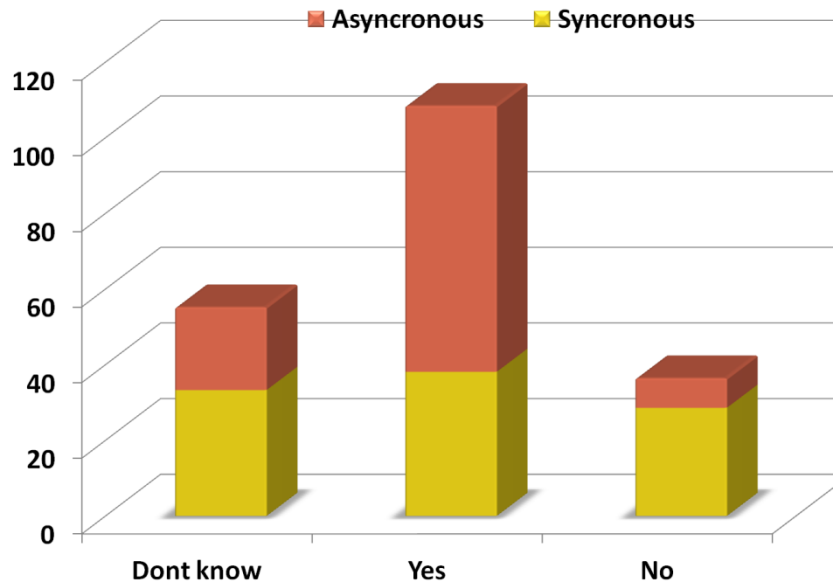
The third aspect, and probably the most important, we were interested in is if through these delivery modes they have the same comprehension of the subjects as we are used to in face to face courses. The synchronous course were in general able to follow and understand explanations both theoretical and problem solving (85%) and a small percentage had comprehension difficulties and could not follow explanations. In general most of the students were able to clear all their doubts.

Text reading in general does not present difficulties to the asynchronous students, their main difficulties are understanding and been able to solve problems/activities, particularly if they have to apply a mathematical equation. Many of the students are not used to working with equations or as postgraduates its been a long time since they have used them. There difficulties in not been able to clear doubts is mainly because the do not ask (through forums, chats or messages) or they ask very close to closure time and hence, do not receive their answer on time)

# 3. Comprehension



**Do you believe it would have been easier to understand and clear doubts in face to face mode?**



**These answers were a surprise to us!**

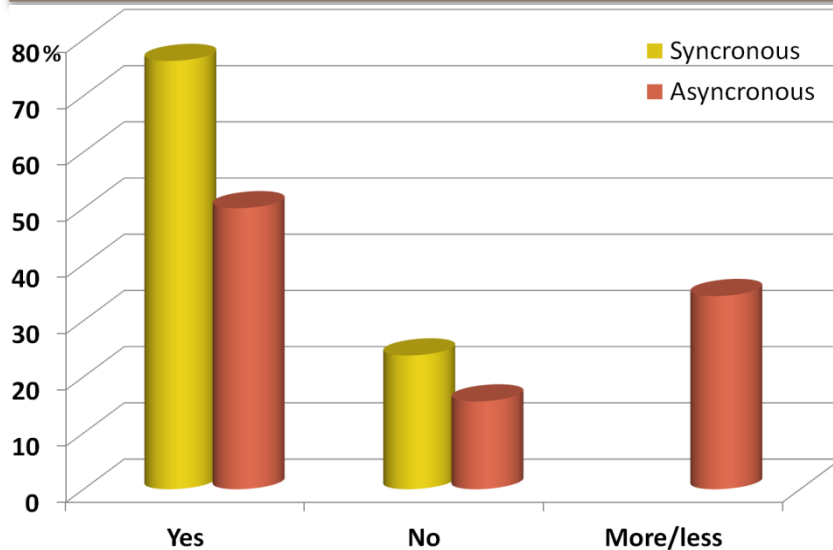
We found it very interesting that almost 29% of the synchronous considered that a face to face, in the classroom lesson would NOT have been more useful to clear doubts or understand the lesson. We were expecting CERO for the No option. In this course most students have taken all their courses on line, since its been almost two years since the start of confinement, and this was during their first semester at the university. They have no previous experience of face to face university courses, only high school. This is reflected also in the Dont Know percentage.

***Synchronous video meetings seem to work quite well !!***

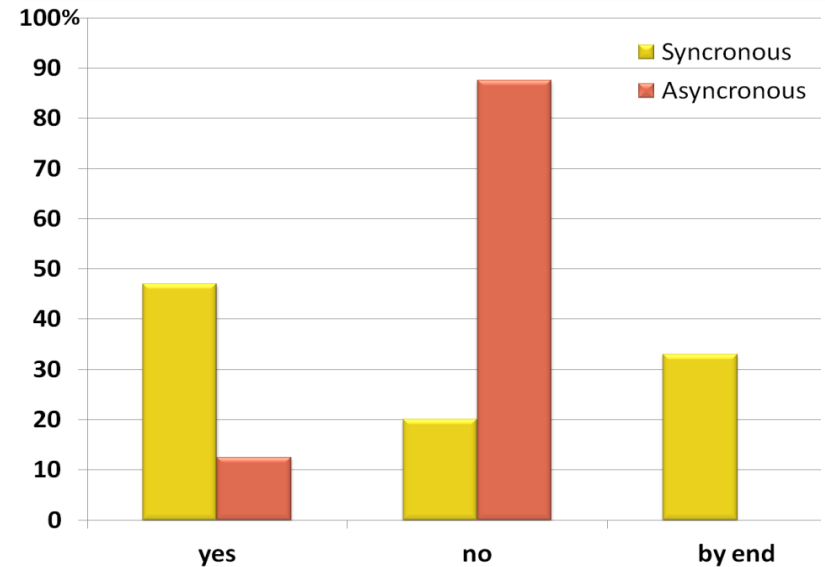
The results from the asynchronous group are closer to what we expected to find as answers to this question. 70% of students believe they would have benefited from face to face lessons for clearing doubts. It would be interesting to ask them if video meetings would have been enough to cover this aspect. In their comments they ask for videos explaining mainly how to deal with equations and examples, but in general they do not ask for help in forums, or do not assist to chat sessions, nor send messages to teachers asking for assistance, and upto know when video meetings were offered only a few (3 or 4) assisted and the rest do not express if they have difficulties to assist or ask for other options

# 5. Adapting

## Were you able adapt to the online delivery mode?



## Were part of a class study group?



The final questions were about adapting to virtuality. In the asynchronous group 76% answered they were able to adapt while 24% were finding it a bit difficult, there were no negative answers. We also enquired if they had been able to create and belong to a study group since they have never met their mates face to face. 80% gave an affirmative answer expressing that “whatsapp application” was fundamental, they were able to discuss problems, exchange opinions and plan to continue studying together throughout the career. These students have a common objective, become meteorologists; they are just starting something they love, and have a couple of years to share as they study. Belonging to a group is most important to them!

The asynchronous group is another story, they all come from different backgrounds and have different goals though they have a common interest in meteorology. Adapting to Moodle takes more time than adapting to a videoconference, however only a small percent has not been able to adapt. Study groups is a different matter, in general there is very little interaction among students, except if they belong to previous groups.

# 6. Conclusions



The results indicate that despite the COVID – 19 pandemic, students were able to appropriate the knowledge required to pass the General Meteorology synchronous course, and some of them felt very comfortable going through this teaching-learning process.

It might be a good moment to re-evaluate the curricula requirement of 100% presence for this course, perhaps a mixed modality for undergraduate students is a very good option, especially for those who live far from the university campus and spend several hours of travel during the week.

We consider that a mixed delivery mode would allow students to achieve a good group relationship and membership of our Department, as well as to consult teachers , particularly for those students with a more reserved character, for whom virtual delivery is not the best solution.

The main goal of asynchronous General Meteorology is quite different from the synchronous version. Students want the opportunity to learn Meteorology, they don't have the interest or possibility of completing a degree, but have a desire to learn and apply the knowledge at work or hobbies. They love everything they are able to learn, but recognize it is not always easy, particularly since many are studying other careers or working fulltime, and cannot dedicate all the time they should to the course. This is not the case of the synchronous group.