

An example for prospective students and parents to review

## **An AMPLE Program**

### **(A.M.P.L.E. = Academic Mentoring and Personalized Learning Enrichment)**

(about curriculum, syllabus, schedule, enrichment field trips, & examination/validation rubrics)

This is only an example. Each Program is customized for the individual student and also for the Team in which each student is a member for a given Session (course). However, what is presented here is close to the typical in terms of learning objectives, activities, and results.

Consider that Michael is in the 10<sup>th</sup> grade, interested in biomedical engineering and electronic health monitoring technologies, going to a to-quality school, clearly intelligent and smart, but he has not been doing so well in mathematics and primary science classes at school, but he really enjoys programming and making adaptations with his smartphone and also with a few novel household appliances such as the family's Roomba robotic vacuum cleaner.

We establish a program plan for Michael that puts him in with a couple of other high schoolers who are on similar estimated levels and we are working with them as a Team and also individually, 1:1, on bringing Michael up to a higher competency in his mathematics while also advancing his knowledge and direct experience with what can be done in activities that interest him particularly.

What does this translate into, in terms of a curriculum plan for, say, an eight-week session?

Naturally, we will start with having an understanding of what are Michael's competencies and his challenges in math right at the outset. Let's just consider, for example, that where he is having challenges is in basic differential calculus, and maybe also in areas of linear algebra.

Perhaps he also feels challenged with word problems, especially in terms of applications of mathematics to physics and engineering topics. So, we will be concentrating our attentions with Michael individually and also in any group activities with other students, on those fundamental barriers and blocks, but also on the regular, traditional material that either he needs to go over again, or that will give him a more solid and ahead-of-the-curve edge when it comes to his next math classes and exams in his regular school.

This means that we will be doing exercises, and there will be homework, and there will be explanations in both directions about how things are done and how the answers are derived. But also, we are not just rehashing textbooks and review exercises. We are showing, hands-on, some in our face-to-face study time, some in our online time, and some in our FEET-work, our field experience enrichment trips ("FEET") where we may be going to one of the science museums, or perhaps on a walk across the Brooklyn Bridge, or on a chaperoned and guided visit to a serious building construction site (e.g., the new World Trade Center), or to a shipyard or railroad maintenance yard. We'll be talking and seeing and having "mental contact time" with the real applications, the real McCoys.

But each week during the Session there will be specific objectives, assignments, and measurements. We will use textbooks, and PowerPoints, and we will be making up some material ourselves, custom for Michael. Each week will spell out what is to be done between us, and by Michael himself, and by Michael with this Team-mates.

OK, that's not all. Let's not forget the Team Project activity. Perhaps Michael's part will be more related to math and calculations, or writing an algorithm or learning to use MatLab or Mathematica better. Perhaps he will be doing something that involves physical engineering – e.g., assembly of some parts to make a working model of a wind generator or a tidal turbine, or a robot. We may in such a case take a field trip over to iRobot over in Massachusetts if time and situations permit, or we may borrow a robot device from one of our mentor-team.

Consider if Michael gets seriously into robots. He could easily have the foundations of what could turn into a longer project, involving us in a small way, but mainly himself or himself with a few friends, and that project could end up being their ticket to the National Competition of the Intel Science Fair. Or it could result in a paper that gets published, or a patent that gets assigned.

Given that Michael's focus with us will be in math, it might seem that there will be little demanded or required in the way of non-math assignments and deliverables, such as papers, presentations, or doing artistic renderings. However, this is not the case! Remember, there will be some sort of coming-to-terms with the application side. Michael may very well learn, as part of his first Session (there can be more than one with us), a number of basics about project management and scheduling, for instance.

**FAQs**

[1] Will students receive credit at the high-school or college level (e.g., Advanced Placement) for work performed in our Sessions?

This all depends upon the nature of the studies and also the high school or college in which the student is or will be enrolled. This is a discretionary matter in the hands of the academic institution in which that student is matriculating or applying for admission.

[2] What if a student misses meetings and activities?

This means that something is not working right in the communication loop between all of us – mentor-teachers, student(s) and parents. We will do our utmost to make sure that this does not happen, and we will aim to be as flexible as possible, taking into consideration of course the other students and the other Sessions that may be ongoing, but we need everyone to do their parts in keeping to committed schedules and also to be attentively flexible.

There are no charges incurred for when there are no meetings and activities for which there have been prior arrangements and changes. It's much like going to one's physician, dentist, or other specialist service provider.

[3] How do we go about putting together the teams of students? How do we match students with one another?

This is something that is easier done and shown than put into words. We are old enough and mature enough to see how some people (students) are inclined and how they are changing, and also how they may best fit with other students in terms of a small group that works together on a project. There is no concise formula!

[4] Are there scholarships or other forms of financial assistance?

We take an approach that is really aimed at addressing respectfully everyone's economic situation in life, knowing also that it can change in a flash, while at the same time being more conscious than ever of the needs to take care of necessary expenses that we ourselves have.

We are sometimes willing to consider deferred payments, barter, trade, and other proper yet innovative (there's that word, again, "innovative!") means of exchange.

[5] What are some of the other typical requirements, if any, such as having any particular type of computer, software internet service, etc.?

There are some basics, but not anything extreme. Each student must have her or his own personal computer, preferably a laptop (running Windows or Mac OS or Linux), along with sufficient (DSL-level) broadband connectivity.

(This document is under revision and a new version is coming shortly, pending a few more revisions by critics and advisors)