

Born in 1938 in Bucharest, Romania, Professor Sanda Clejan studied medicine at the Parhon School of Medicine in Bucharest; she got her Ph.D. in Biochemistry from the City University of New York in 1979. At present Dr. Clejan is Professor of Pathology and Adjunct Professor of Biochemistry at the Tulane University School of Medicine, in New Orleans and Director of Chemistry, Special Chemistry, Endocrinology at the Tulane University Medical Center and Director of CORE Laboratories, General Clinical Research Center at the Medical Center of Louisiana in New Orleans. Her scientific interests cover prostate cancer, microgravity models in biology, and signal transduction and include active participation in medical education and integration of laboratory medicine in basic science. Dr. Clejan was a Fulbright Scholar at Carol Davila School of Medicine in 2002 where, among other activities, she initiated a curriculum reform to integrate basic and clinical sciences. The letter presented below was published in "Curierul de Fizică" (in Romanian) nr. 44/ March 2003 – see <http://www.fhh.org.ro>

Open letter on PhD studies in Romania

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Dear Mircea [Oncescu]¹,

This letter is intended for faculty members, teachers and administrators of [Romanian] Universities with Ph.D. programs in medical and physical sciences, and probably pertinent to Engineering too. My intentions are to generate discussions, eventually focus groups to help Ph.D. students become more competitive on the "World Market", but mostly to align the graduate programs in Romania with the Western World. As you know, I had a Fulbright Award with a tenure of 6 months at the Carol Davila School of Medicine. My main interest was to change the curriculum in the Medical School to a more integrated program between basic and clinical sciences. By example (I taught an Integrated Laboratory Medicine course for 3rd & 4th year medical students) and by consultation to the Department of Biochemistry at the C. Davila School of Medicine, we were successful in beginning this process.

I owe my success to a group of young assistants in the Biochemistry Department who enthusiastically put my recommendations in practice and gave me valuable feedback. These "assistants" were all Ph.D. students. Six were in the Department for 10 years and nowhere near finishing their Ph.D.! Four others were in the Program for more than 5 years! There were only two recognized scientific advisors: one was a professor semi-retired and sick, with the idea (from the French school?) that finishing the Ph.D. is done at the end of your scientific career; and the other was the Chairman of the Department, who died unexpectedly, leaving the students with no advisor. Due to the fact that no other full Professor was in the

¹ Editor of "Curierul de Fizică". We wish to express our thanks to Dr. Oncescu for permission to publish this material.

Department all ten were left with no one to even talk with about their graduation! Due to my intervention, and that of the rector of C. Davila School of Medicine Acad. L.M. Popescu, I took many of them to graduation, by serving myself as advisor (and working on Saturdays and Sundays at my rented apartment with them on their thesis and presentations). Although this may be an extreme situation, I found very similar situations in other Departments throughout the Medical School and, the same response from other Universities in Bucharest! Only full Professors can be principal advisors, the Dissertation committee is formed very late in the process, and only from full Professors again!!!

So, it is my opinion that this is the most important area of discussion. Who are the best advisors and mentors and what academic qualification(s) are important for good mentoring? In a nutshell: facilitate a national discussion among representatives of government, academia, employers and professional organizations to examine the goal, policies, conditions and unresolved issues pertaining to graduate education in Romania. This discussion should include:

1. How to adjust support mechanisms to include education/training grants to departments and programs?
2. How to act to ensure continued diversity among institutions and research excellence?
3. How to help establish a national Romanian database designed and managed by the Research Community?
4. How to improve the coverage, timeliness and data on the graduate education of scientists and engineers?

From my observations of graduate students in Romania, below are some of the other issues to be discussed and debated:

1. *Which students should you accept?* You might be approached by more than one student about being an advisor. Bear in mind the responsibilities of saying yes, and examine your other commitments. Handling a large group might be possible with a “secondary mentoring” network, where senior members of your research group act as mentors to junior members. It is inconceivable to me not to let young or not so young Associate Professors (Conferentari) or even talented Assistant Professors with doctorate serve as advisors!
2. *Choosing a degree program.* Many students on the threshold of graduate school are unable to visualize a career path; this makes it difficult to choose a degree program. Remind them that careers evolve slowly, and ask the kinds of basic questions you would ask an undergraduate: What are you good at? What kinds of activities are most satisfying? How much schooling do you need to do that?
3. *Choosing a research topic.* Urge the student to think through a research topic in advance – to imagine a thesis title, list hypotheses to test and perhaps expected outcomes, and write a full proposal. The title and outcomes might change, but a well designed planning procedure helps the student toward a common understanding of the project.
4. *Planning the curriculum.* When a new graduate student arrives at your institution, discuss the rules regarding required and elective courses, comprehensive exams, thesis and teaching. Requirements vary even within one Romanian institution. Can this requirements be aligned with programs in Western Europe or U.S.?
5. *Choosing a committee.* Both mentor and student should participate in choosing a committee. Be sure the group represents a good mix of ages, fields, analytic approaches, and other qualities. If you as research advisor have a practical bent, a colleague who is a theorist might add good balance. Share with the student any knowledge of personal or political conflicts among potential members, which could disrupt a students progress and morale. Choosing the committee at the beginning of the program is essential.

6. Some students are tempted to seek members who are unlikely to be critical. You should encourage students to avoid this strategy. The members of a committee should be respected scholars and have the expertise needed to give thorough exams and supervise research. The student needs committee members who will form the nucleus of a professional network and eventually help the student find employment and a satisfying career path.
7. *Making good progress.* Part of the mentor's job is to teach careful planning and use of time. Let students know what their responsibilities are and agree on schedules. Why students are left without counsel for years? Students benefit from writing regular progress reports (preferably in the form of research articles) to clarify their own work, to communicate with you, and to sharpen their writing skills. Powerful forces can work against making good progress. You or other faculty might seek to retain students as they become more proficient. This is an unfortunate conflict between your desire to maximize productivity in your own research and your duty as a mentor to support a student's timely progress. Your primary obligation is to the education of the student. Students, too, can be reluctant to conclude their research, either because they have not found employment or because they don't know what to do next. Urge them to push against those forces. The students' goal should be to finish in a timely fashion, and this should be your goal for them as well.
8. *Abuse of power.* Many students, especially in graduate school, are profoundly dependent on their mentors – often for a combination of financial, educational, and emotional support. This dependence makes it easy for advisors to abuse their power (sometimes unintentionally) and difficult for students to contest an abuse. Advisors might give inadequate credit for students' research or assign work of little or no educational value. They might impair a students' confidence by too much criticism, too little support, or emotional indifference. Abuses of power can be especially hard to resolve when the person best positioned to help solve the problem is central to the problem!
9. *Professional growth.* There are many ways to facilitate students' professional growth in addition to one-on-one counseling. One strategy is to create informal cross-disciplinary groups. I organized such a group: Molecular Mechanisms in Biological Sciences – graduate students from many departments from C. Davila School of Medicine, Bucharest, Romania came but getting the Professors to participate was like “pulling teeth”!.

I would like to also recommend a very short book of the National Academy of Sciences, National Academy Press, (3rd print, October 2000), “*Adviser, teacher, role model. On being a mentor to students in Science and Engineering*” to each of the participants in these discussions.