

ADMINISTRATION, TEACHING AND RESEARCH PHILOSOPHIES

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A simple, direct, fast point of view regarding my perception of Administration Philosophy, Teaching Philosophy, Research Philosophy (including My Own Research), and What I Can Bring to This Institution.

1. Administration Philosophy

- The Department Chair is an administrator (not a ruler) in order to serve the Faculty, students, the Dean and the Provost;
- Chair is an interface between Math Department Faculty and upper level administrators;
- Collective Leadership in the department, i.e. all important actions and decisions taken by departmental discussion and vote; we thus learn to accept decisions taken by the majority;
- Delegation of responsibility and authority to Faculty (decentralization within the department);
- Analyzing the recommendations and suggestions from Faculty and staff;
- Flexibility of Chair and Faculty;
- Fairness of the Chair and Faculty;
- Active listening of Chair and Faculty;
- Students first;
- Canals of communication with departmental Faculty and staff: through emails to all of them, plus printing the email and putting it in everybody's mail box (internal mail); telephones; appointments;

- Similar communication with the upper level: Dean of Arts & Letters College, Provost; according to Confucius Theory where the order and discipline is a way of life, the Chair follows the upper level administrators.
- Short department meetings as needed;
- Meeting agenda made before the meeting and sent to everybody about one week ahead; new agenda items can be added, or other deleted as per Faculty request;
- Evaluation of performance of Chair and Faculty;
- Availability of the Chair and Faculty;
- Socializing the whole department through: pot lucks, going together to restaurants, sport if possible, hiking, swimming;
- Considering empathy to solve conflict, i.e. everybody should respect the other one and his/her ideas – even if not agreeing with him/her (using fuzzy logic and neutrosophic logic, where something or somebody can be partially true and partially false in the same time – so we need to work together even if we are different);
- We are influenced by each other; that’s why we need to be positive to each other (because otherwise negativity would propagate); we need to rely on each other;
- Everybody has different beliefs and attitudes, therefore we need to converge all of them to the Departmental and College goals;
- It is normal in a group of people to have conflicts and contradictions; we need to bend the contradictions; we need to learn to live with contradictions and try to diminish contradictions;
- We learn to live with challenges as well;
- Collaborative team work;
- I am popular; students, faculty, staff call me Florentin.

2. Teaching Philosophy

- Infusion of Technology in the class room: graphing calculators (Texas Instruments, Casius, etc. calculators) for undergraduate and graduate students; mathematical software such as “Mathematica,” “Apple, “ and other computer algebra systems;
- Teaching through undergraduate or graduate research; telling students to question themselves; encouraging students to ask questions in class (to have a dialogue, not a monologue in class);

- Offer Honor Classes;
- Distance Education; teaching online more classes and programs;
- Attract students by doing math through games, math for kits, math jokes, funny math, recreational problems, showing students the math used in our everyday math;

An example of the importance of the space in mathematics I often tell my students in various classes:

- On a power line there are 10 birds. A hunter kills 3 of them. How many are left?
- On a plain in the grass there are 10 birds. A hunter kills 3 of them. How many are left?
- In a cage there are 10 birds. A hunter kills 3 of them. How many are left?
- In the sky are flying 10 birds. A hunter kills 3 of them. How many are left?

My students laugh when trying to guess the answer. And next times they are again asked me: can you tell us more funny problems?

- Or tell them about the Beauty of Math!

$$\begin{aligned}
 1 \times 8 + 1 &= 9 \\
 12 \times 8 + 2 &= 98 \\
 123 \times 8 + 3 &= 987 \\
 1234 \times 8 + 4 &= 9876 \\
 12345 \times 8 + 5 &= 98765 \\
 123456 \times 8 + 6 &= 987654 \\
 1234567 \times 8 + 7 &= 9876543 \\
 12345678 \times 8 + 8 &= 98765432 \\
 123456789 \times 8 + 9 &= 987654321
 \end{aligned}$$

- Develop and adjust the Curriculum for the needs of the students;
- Foster students' learning;
- Being creative in teaching; continuously updating and improving the style of teaching in order to avoid monotony;
- Adjusting the teaching methods depending to the type of students: there are visual learners, and audio learners;
- Examine students learning style in order to adjusting the teaching style for their way of understanding;
- Interacting with students;

- Stimulate students by giving them extra-points towards the final grade for extra-homework and for class participation (I have students solving problems on the board during the class time and explaining them to the other students);
- Active learning, not passive learning; logical learning, not mechanical learning;
- Learning in groups;
- Learning by connecting the new knowledge with old knowledge;
- Making connections between math knowledge and other domains' knowledge;
- Exchange teaching ideas with other faculty from this institution or from others;
- Applicability of Math: make students understand that math is important in our real life;
- Bringing students off from monotony and passivity by telling them funny math stories, math curiosities, anecdotes about mathematicians, also about mathematicians' lives, etc.
- Evaluate students' critical thinking, problem-solving, technical writing, content knowledge;
- Discover students' psychology of learning;
- Challenge students' intellectuality;
- Short History of Math told to students when teaching a special topic, so the students see the evaluation of the topic, why it was needed, how it arose;

3. Research Philosophy

- Research that benefits the students and the society;
- Educate students through research;
- Be a model for the students;
- Use deductive and inductive methods of research;
- Undergraduate or graduate research projects assigned to the students;
- Attracting students to do research by involving them in our own research;
- How to generalize a problem? How to generalize a theorem? What about if the given hypotheses of a theorem are changed? Check many examples. Check corner cases. Trial and error in research

- Explore in depth the topic; do a survey of the literature
- Ask for help if not able to solve a problem, and thus co-author the research;
- Break down a bigger problem into smaller problems, and then solve each of them;
- Make connections with other subjects;
- Aboard the problem from various angles, various methods;
- A small idea sparkle can lead to a great outcome;
- Solve real problems;
- Keep a professional integrity;
- Interdisciplinary research;
- How to mathematically model a real problem?
- Research in teaching: how to better methods and strategies of teaching? How to motivate the students to learning?
- Research in pure and applied math;
- Research in order to solve existing unsolved problems, open questions, conjectures;
- Thinking differently! Sometimes a stupid apparently question can lead to a genial idea! {For example, why differentiating 2 or 3 times and not... 2.7 times? And similarly for integration. This lead to the fractional differentiation and fractional integration. }
- Question the classical theories to see if it's room for alternative or generalizations (look for example at the evolution from Euclidean Geometry to its opposite Non-Euclidean Geometry);
- What research methods to use?
- Disseminate the research results; how are they useful to the society? Theoretical research can lead to applications;
- Look for Research Grants and Fellowships for students and Faculty;
- Create a Digital Library of Math e-Books and e-Articles as support for the research;
- I partially paid for my Conferences trips; I did most of my research in my spare time (especially in weekend, or after classes);
- Research for me is a hobby.

My Own Research

- Applied Mathematics in Information Fusion (used in robotics, airspace, military, medicine);
- Granular Computing (Neutrosophic Logic and Set and their applications);
- Algebraic Structures;
- Applied Mathematics in Quantum Physics, Statistics, Economics;
- Non-Euclidean Geometry;
- Number Theory (Arithmetic Functions, Sequences, Diophantine Equations and Systems, Prime Numbers).

4. What I can bring to this institution:

- “Progress in Physics” international journal of physics and mathematics will become Texas A & M University-Kingsville’s international journal (the correspondence address would be that of this institution); I am an associate editor of this journal since the journal was founded in 2005, and I get all work in my spare time – without asking for release time or for a penny from my university;
- Publish periodically a collective volume of research math papers of our math Faculty; then put the book in international scientific databases, such as EBSCO, CENGAGE, ProQUEST, Amazon Kindle, Amazon.com, Google Book Search, Google Scholar
- Endorse Faculty who did not yet submit papers to arXiv.org (online scientific database at Cornell University, NY);
- A Digital Library with over 300 titles of e-books and e-journal issues and over 100 scientific papers for the benefit of students, researchers and professors from around the world [for example this site of mine has presently about 7,000 hits/day from people from about 100 countries];
- Donation of books and journals periodically to the TAMUK James C. Jernigan library; (by the way I have a special collection at The University of Texas at Austin, Archives of American History);
- Attracting more students from around the world to do their graduate study in pure or applied mathematics at this university due to this Digital Library with free e-books and e-

articles; I am in touch with many people from around the world and they asked me if I can be an advisor for their future or if I know someone else to recommend to them;

- 62% of the students at TAMUK are Hispanics; I speak and understand a little Spanish (which is a romance language close to Romanian and French that I am fluent in);
- I also have a degree in Computer Science (M. Sc.), therefore I can interact with the Computer Science Department for interdisciplinary research (for example in Granular Computing);
- Search for more Grants and Fellowships for students and Faculty;
- Organizing the AMATYC [American Mathematical Association for Two Years Colleges] Competition for undergraduate math students (if it is not already in place herein; checking your website I did not find it);
- Cooperating with Dr. Reza R. Ahangar, the advisor for his the Math Club, and with other interested Faculty in order to make a similar Funny & Recreational Math Problems Club (to show the students the beauty of math!), Math jokes (to get out of the teaching monotony); this would also attract students to math;
- Setting up, if needed, of a Reconciliation Committee, within the department in order to discuss with the conflicting parties and try to reconciling them;
- Introduce Math Labs associated with many math courses [of course if approved by the Curriculum Committee] in order to assist students in doing their homework (that's, for example, what UNM does for undergraduate classes: Intermediate Algebra, College Algebra, Pre-Calculus, Trigonometry, Calculus for Business, etc.) of 1 credit hour in order to increase retention;
- Add new graduate classes to the current core of classes that I can teach, such as: Number Theory, Abstract Algebra, Neutrosophic Logic/Set (Generalization of the Fuzzy Set/Logic), Foundations of Non-Euclidean Geometry, Mathematics Applied in Information Fusion, Granular Computing; a bigger diversity of math courses and programs attracts more students;
- Try to develop a Ph D Program in Math, or in Bilingual Mathematical Education (derivative of Ph D Bilingual Education Program already existent in the College of Graduate Studies) – of course if approved by the Curriculum Committee and the upper level administrators.

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