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SCIENCE

Studies that more than meet the eye

Lyndon Jones' research in optometry takes him to other disciplines, universities and countries

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STAFF REPORTER

It's not hard to develop misconceptions about what the school of optometry does on campus. Situated in an unassuming, brown-brick building across Columbia Street, one might think of the faculty as isolated from the rest of campus, concerned only with performing clinical studies and handing out contact lens samples to guinea pig students. I certainly shared this view before my interview with Dr. Lyndon Jones, professor of optometry at UW. "Even the corridors look clinical," I thought to myself as I wended my way to his office. "Everything I thought about this place must be true."

But a mere five minutes with Prof. Jones, and my opinions were permanently changed. An eclectic, upbeat individual with a cheerful Welsh accent to match, it took little for Jones to show me just how connected to campus the optometry department really is. Then again, Jones has been looking at ways to collaborate with other departments since he first came to Waterloo in 1998.

"We can adapt their skill sets to try and understand some of the things that we're involved in," Jones explains. "For example, in physics, James Forrest has an interest in looking at how proteins interact with surfaces. That's exactly the kind of thing I'm interested in. There are people over in chemical engineering who do drug delivery stuff; we could use contact lens materials to deliver drugs to your eyes if you have a sick eye. There are people who do friction studies … in hip and knee transplants. Well, again, we're very interested in the frictional force that occurs when an eye goes over a contact lens. In chemistry there are people who have a great interest in looking at proteins and lipids — [that's] perfect for the things that we're interested in. In biology there's a large immunology group; contact lenses and immunology are perfect ways to study things together. Rather than trying to reinvent the wheel, [we] see if there are other people here who would like to collaborate."

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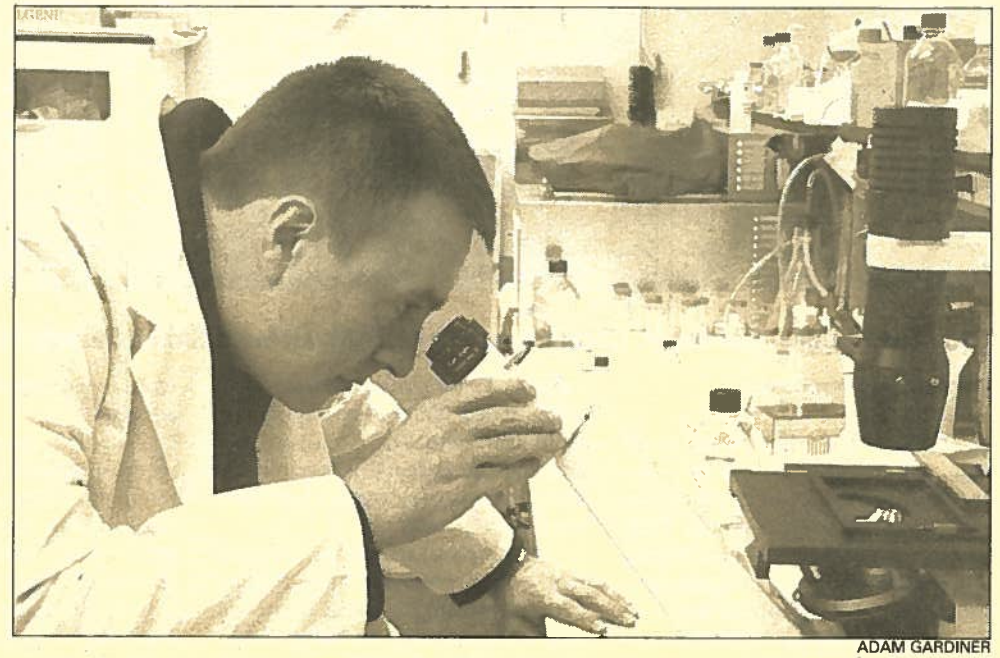
That kind of attitude keeps Jones a busy man; in addition to his duties at the school of optometry, he is cross-appointed to the departments of physics, biology, chemistry, and chemical engineering, and supervises twelve graduate students in those fields. And that's just at UW; he also holds an adjunct apointment at MacMaster University, with graduate students there. "My average day is really weird," he admits to me, as the chirp of an incoming e-mail sounds from his computer, perfectly on cue.

Of course, Jones is used to handling several subjects at once: it's that unique quality that helped bring him to UW, along with his wife Debbie, who directs programs in the clinical faculty. "I have a Ph.D in chemical engineering," he said, "looking at how contact lens material interacts with tears. And because I have that unusual background, of being a clinician with a high degree in that unrelated field, both myself and Debbie got invited to positions here."

Prof. Jones' current research looks at the effect contact lens materials and solutions have on user comfort. "Over the last five to six years," he explained, "we've seen the introduction of a brand new contact lens material [called] silicone hydrogels. Hydrogels have very little water in them, and the oxygen is transported through the lens by the silicone. The only downside of that is that silicone is very hydrophobic; it hates water. And as soon as you make a contact lens that doesn't wet very well, you're in big trouble: although the lens is transporting vast amounts of oxygen, you see comfort complications. When the lid moves over the lens, it doesn't move very well. The oil in your tear cells adds to that lens, and you get a greasy lens. So my principal interest these days is trying to characterize how these new lenses interact with tear cells ... trying to understand the deposition of proteins and oils, and then trying to minimize that, either by modifyng the contact lens material, or by producing some form of wetting drops or contact lens solution that maximizes how they interact."

The impacts of such research could be quite significant, explained Jones. "There are 100 million contact lens wearers worldwide, of which about three million are in Canada. When we survey [patients] about how happy they are with their contact lens performance, about fifty per cent will compain about end-of-day dryness. That's a big chunk of patients."

It is his teaching style, however, that has earned him the greatest accolades so far, including the prestigious Michael Harris Award from the American Optometric Foundation, an honour Jones was "absolutely elated" to receive. The always-engaging Jones tries to present his lectures in a more interactive way, using questions and scenarios to engage his audience. "People hate to sit in there being talked at," he said. The way that you teach students is quite different from the way that you teach your peers. When you're presenting to clinicians, it's more a case of making an exchange [of info]."



ADAM GARDINER

Prof. Lyndon Jones at work in one of the Optometry building labs. Jones' research has the potential to affect millions of contact lens wearers worldwide.

So what drew the Welsh native to pursue such an successful career? The answer is more surprising than one might expect. "I left school and became a DJ," he recalls, "and after a couple of years working as [that] I decided it would be more sensible to go and get a real job. I chose the university [of Wales] because it meant that I could still work in the club … and I could put myself through university. And I chose optometry purely because [the faculty] has the best rugby team in the university."

Now, Jones is invited to present studies and speak at conferences around the world. In fact, the immense amount of traveling done by he and Debbie has turned their family into bona fide jetsetters. Fortunately, their two children — 11-year old Rebecca and 8-year old Ben — don't mind one bit. "Oh, they love it," says Jones. "They come with us as much as we can take them. To them, getting on a plane is a bit like getting on a bus. I didn't go on a plane until I was 22; they have their own frequent flyer cards."

He admits, though: "I'd like to maybe travel a bit less. That would be very nice; I travel way too much. But that's probably not going to happen realistically."

In contrast, Jones is very excited about the future of the school of optometry. In addition to accepting more students, and establishing a satellite campus connected to the school of pharmacy, Jones noted that construction of a new wing on the optometry building is set to begin next summer. "We have simply outgrown the ability to teach the number of students that we have," he said. "Every batch of students you take in has a huge impact on teaching resources; you can't just take [upper-year] students and shove them in a lecture hall."

Hopefully the expansion will help alleviate the perceptions students have about the school. "The biggest impediment to people on campus knowing what goes on in optometry is Columbia," sayid Jones. "That physical separation of our building really impacts heavily on people's perceptions."

Fortunately, there are people like Prof. Jones to change those perceptions, whose work illustrates how there is much, much more to the school of optometry than meets the eye.

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