

Science and Specificity: Interdisciplinary Teaching between Theology, Religion, and the Natural Sciences

Consideration of the work of natural scientists by theologians further extends the innate interdisciplinarity of theological study. Here, we focus on interdisciplinarity as it bears upon undergraduate and postgraduate education and supervision. Much research in theology and science today asks how some more specific area of science bears upon some specific aspect of theology, in contrast to earlier attention to methodology, and how theology-as-such might relate to science-as-such. This paradigm, described as ‘Science-Engaged Theology’, is showing itself in teaching, with both benefits (capturing the imagination of students) and challenges (the work of learning about the details of scientific research). Criticisms raised about Science-Engaged Theology in research also suggest goals for education. These include encouraging students to ask whether science does bear upon their theological topic, after all, and the suggestion that a move beyond methodology should not leave the theologian uncritical of the theological freight potential associated with the assumptions and paradigms that shape natural science, either explicitly or implicitly.

Keywords: science and religion, theology and natural science, science-engaged theology, theological education, interdisciplinarity

Scholarship on the relation between the interests of theologian and natural scientists is rightly celebrated as a creative and consequential field of interdisciplinary work. The publication of a collection of papers honouring a leading scholar in this area – Alister McGrath – offers an opportunity to reflect on a field of study that has come to considerable prominence over the course of his career to date, indeed in part thanks to his own contribution. Such discussions often focus on research. Here, in contrast, I will place the emphasis on teaching and postgraduate supervision: both for the sake of an alternative focus, and in recognition of McGrath’s own deep investment in education over the course of many years.¹

¹ Before taking up the Andreas Idreos Professorship in Science and Religion at the Faculty of Theology and Religion in the University of Oxford in 2014, McGrath was Professor of Theology, Ministry and Education in the School of Education, Communication and Society

The practical value of attention to the relationship between theology, religion, and natural science today hardly needs pointing out to readers of *Zygon*. Writing, as I am, at the end of 2021, I need only note the implication of religion in some forms of vaccine hesitancy, meaning that religious leaders, religious literacy, and study of perceptions of science within religious settings, will all play a significant role in any effective response. We might also consider climate change, where I think of my colleague in Cambridge, Julian Allwood, Professor of Engineering and the Environment, who misses no opportunity to point out not only that human behaviour needs to undergo wholesale change when it comes to carbon emissions (as we might expect), but also that the driver for that change will not particularly come from additional scientific study. The science has been entirely clear for a good while now: what we need are new and deeper forms of cultural and emotional engagement with that science, of a kind that has the capacity to change what we desire, and therefore how we choose to live. Religious advocacy and reflection will have a vital role to play in that for most of the world's population, even for a great many in the generally more secular, and more polluting, West.

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Interdisciplinarity in theology is nothing new. To a degree almost unrivalled among arts and humanities faculties, what goes on in any faculty of theology, divinity, or religious studies will reflect within itself a whole world of academic study: philosophy and history, ethics, politics and economics, languages and philology, textual study, sociology and anthropology, and so on. Nor even is attention to the natural world by theologians entirely new either, although it did not become so industrious or well-defined an activity until the twentieth century. As an example of that long history, we need only consider the mediaeval university and its curriculum. Any 'higher' discipline, such as divinity or law, could only come into view once a student had already progressed through the seven areas represented by the Trivium and Quadrivium: grammar, logic, and rhetoric, followed by arithmetic, astronomy,

at King's College, London. Prior to that, from 1995–2005, he was Principal of Wycliffe Hall, Oxford, a theological college of the Church of England.

music, and geometry. Given that ‘music’, as it features in that list, was in fact highly mathematical and concerned with the study of proportions, we find that a good deal of mathematical training was included in general university education (if, admittedly, not yet much by way of experimental study), including preparation for theological studies.

The study of religion or theology, then, today as in the past, is already deeply interdisciplinary. While almost all of its practitioners work in some relatively specialised sub-discipline, they will not do so in isolation from others. We would not think well of a theologian who claimed to have no need for historical or philosophical awareness, or of an anthropologist of religion confessedly uninterested in the doctrinal perspectives of those whom he studied. Quite likely, a scholar in theology or religion will work from some position of overlap between disciplines. When we bring the natural sciences into our work of theological teaching and research, we therefore bring them to meet something already both variegated and interrelated. In doing so, we extend that yet further, such that one mode of interdisciplinarity bisects another.

Potentially, as a consequence, one could offer a syllabus of teaching in a faculty of divinity, or equivalent, attentive to the natural sciences, that would be almost as broad and interdisciplinary as the interests reflected in a faculty as a whole: natural sciences in relation to doctrine, philosophy, ethics, history, the social science of religion, and so on, including, for instance, theological study of literature or economics. In practice, however, very few theological institutions will employ more than a single academic working with the sciences primarily in view (if they do so at all), and the approach and expertise of that member of staff will set the running in teaching and postgraduate supervision. In Cambridge, for instance, the papers or courses relating to science naturally relate to my own interests, such that they sit within the Christian systematic theology subject area, with a philosophical inflection. Elsewhere, the expertise and emphasis might instead be in history, ethics, or social sciences, for instance. In any setting, there will also to be some centre of gravity to the teaching on the scientific side, based again on the interests and expertise of the instructor. In my case, that is largely in biological.

Among the most significant developments in scholarship between theology and natural sciences of the past couple of decades has been a pronounced movement away from an emphasis on methodological questions – where the focus has been on how science-as-such might relate to theology-as-such (or to religion-as-such) – to research focussed instead on theological attention to some specific findings in science, as they bear upon some specific topic in theology. To illustrate this from my own work, that might involve seeking to broaden our sense of the agency of creatures in the work of world-making, by consideration of ideas of niche construction in biology, consideration of relationships of competition and cooperation between organisms in view of biological mutualism, or asking how traditional notions of divine exemplarism hold up, in relating creature to creator, in light of evolution.² Such investigations have rather a different feel from work, for instance, so familiar from the writings of the most influential figures of the later twentieth century, on taxonomies of potential relationship between theology and science. This shift also aligns with one of philosophical perspective, at least in some cases. As Michael Hanby has noted, the earlier more methodological focus aligned with a tendency (whether stated or unstated) to see epistemology as ‘first philosophy’.³ In contrast, when the attention is more directed to what science has to say about this or that aspect of created reality, that often goes hand-in-hand with a shift in the sense of where the philosophical foundations lie, from epistemology to ontology, or metaphysics (for all such philosophical topics are hardly entirely separable), today much in evidence in theological conversations on scientific matters.

² Andrew Davison, ‘All Creatures That on Earth Do Make a Dwelling: Ecological Niche Construction and the Ubiquity of Creaturely Making’. *Philosophy, Theology and the Sciences* 7, no. 2 (2020): 181–204; ‘Christian Doctrine and Biological Mutualism: Some Explorations in Systematic and Philosophical Theology’. *Theology and Science* 18, no. 2 (24 May 2020): 258–78; ‘Christian Doctrine and Biological Mutualism: Some Explorations in Systematic and Philosophical Theology’. *Theology and Science* 18, no. 2 (24 May 2020): 258–78.

³ Michael Hanby, [TITLE TO FOLLOW] in *After Science and Religion: Fresh Perspectives from Philosophy and Theology*, Peter Harrison and John Milbank (eds). Cambridge: Cambridge University Press, 2022.

I have described this approach in terms of theologians seeking to ‘think with science’ rather than to ‘think about science’: that is to say, to think about what science thinks about, rather than thinking about the idea of science-as-such.⁴ In recent years, not least in terms of how research funding has been conceived, advertised, and awarded, particularly by the Templeton charities, this shift to particularity is also seen in the prevalence of the language of ‘Science-Engaged Theology’.

Writing recently on that Science-Engaged approach (which they have been instrumental in setting out and advocating), John Perry and Joanna Leidenhag have described it as one setting out to consider how some otherwise ‘unacknowledged or underacknowledged concept within current theological debate... is already entangled in empirical claims’, such that attention to that idea or concept in the company of the natural sciences will throw significant additional light.⁵ In contrast to work characteristic of an earlier phase of ‘science and religion’, it will therefore have moved away from consideration of large and generalised topics (such as ‘arguments for the existence of God, the reality of an immaterial soul, Darwinian evolution, and special divine action’) to attend to much more specific points of exchange: to some particular matter of theology, thought through in relation to some particular work of the scientist.⁶ Indeed, ‘the more specific we can get about the theological doctrine and the scientific theory of study, the better’: this is not “‘Science and Religion”, so-called, but biology and liturgy, or ecology and stewardship, etc.’⁷ Questions of methodology, so significant in previous writing, are consciously set aside – at least temporarily – out of a desire to get on with a project, rather than think about how or whether it might be accomplished.⁸

⁴ Andrew Davison, ‘More history, more theology, more philosophy, more science: the state of theological engagement with science’ in Peter Harrison and Paul Tyson (eds), *New Directions in Theology and Science* (London: Routledge, 2022).

⁵ John Perry and Joanna Leidenhag, ‘What Is Science-Engaged Theology?’, *Modern Theology* 37, no. 2 (April 2021): 247, doi:10.1111/moth.12681. As they present it, this approach stands usefully alongside grander, more explicitly metaphysical and historical attention to the genealogy of science, theology, and religion, as an enterprise he particularly associates with writers associated with Radical Orthodoxy and allied sensibilities (Ibid., 246–47).

⁶ Perry and Leidenhag, ‘What Is Science-Engaged Theology?’, 248.

⁷ Ibid., 252.

⁸ ‘Oftentimes a method will open-up new roads of inquiry. But when this leads to a dead end, then we must ask new types of questions and reflect upon methodology afterwards’ (Ibid., 248).

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A panel in the (online) American Academy of Religion / Society of Biblical Literature Meeting, held in December 2020 (to which I contributed) suggested that this shift to particularity is coming also to be felt in approaches to teaching. That offers benefits, as well as posing challenges. Principal among the former, in my experience, is the way in which science in the particular is simply more apt to capture the imagination than discussions of science in some general sense. In addition to all the appeal of theology, the teacher also has at her disposal all the wonders of science, whether that is the ‘sound’ of gravitational waves emitted when one two black holes collide, or – as in one of my courses – a succession of holiday snaps illustrating biological mutualism, taking in ox-pecker birds, leaf-cutter ants, stromatolite formations, and an algae-caked sloth. This is similar to what I take to be the value of specificity in theology when it comes to holding the attention, for which reason I always begin introductory courses on Christian theology with some concrete topic, such as God or creation, rather than something abstract, like methodology.

Among the corresponding challenges in teaching with a ‘specific science’ focus is the sort of knowledge it calls for. Work between what today we define as theology and science calls for expertise in these distinct disciplines, each with extensive bodies of knowledge.⁹ That is only compounded by any shift in emphasis, whether in teaching or research, from attention to methodological concerns (often dealing with what a relationship between theological and natural sciences might even look like) to a ‘thinking with science’ or Science-Engaged Theology approach. The focus of the earlier perspective – on methodology, epistemology, and the cultural conditions underlying religious or anti-religious dispositions – is closer in its scholarly framework to what is already familiar to the theologian than are the sorts of topics that emerge from attention to the work and interpretations of the sciences themselves, whether that is contemporary study of evolution, cosmology, or neuroscience, for instance. With a Science-Engaged Theology or ‘thinking with

⁹ The importance not to retroject categories such as ‘science’ and ‘religion’ into analysis of the past has been stressed by Peter Harrison in *The Territories of Science and Religion* (Chicago: University of Chicago Press, 2015).

science' emphasis, theological attention to the particular work and conclusions of contemporary science is all the more integral. That focus on particular scientific work therefore raises particular, and possibly pronounced, challenges when it comes to preparing students to be able to engage with the likely unfamiliar specificities of some science or other. In addition to being well-informed theologians, must they not also become knowledgeable in the sciences, if not exactly scientists themselves?

In practice, the difficulties surrounding a lack of scientific expertise can be mitigated by the calibration of parameters, expectations, and aspirations of interdisciplinary work to the context concerned: one of undergraduate study, for instance. Even a course at that level can lead to fruitful learning, and to an insightful essay or essays at the end, when the student has been introduced to scientific work in a demarcated area or areas by lectures and a well-chosen bibliography. In fact, the preparation of carefully curated reading lists turns out to be a primary task for the instructor in this situation, as also is work to help students develop skills that allow them to discern what makes for trustworthiness in scientific publishing, especially when encountered in a more popular or mediated form. In a context when misinformation, 'alternative facts', and the proposal that the public have 'had enough of experts' is so prominent in our common life – often to disastrous effect – development of such judgement about sources, and how to assess particular claims against the background of a wider scientific communication, may be among the most important benefits that comes from a course that brings elements of natural science into an arts and humanities curriculum. With those critical skills at least partially developed, we can then readily benefit, in teaching between science and theology, from living in something of a golden age when it comes to scientific communication, not only in the form of books, but also in scientific journalism (where I have found articles from *New Scientist* to be useful, and even more from *Scientific American*), alongside videos, podcasts, and other web resources, some of which might for instance run even to animations or interactive simulations.

The compilation and annotation of lists of books and other learning resources is crucial, but time-consuming, and it is enriched by serendipitous discoveries. Given that, I am struck that the considerable time devoted by academics in theology and natural science to publishing and discussing research is not matched by similar

energy spent working together on sharing resources, ideas, and insights when it comes to teaching. Both scholarly publications and societies in the area, with their annual meetings, could have a role to play in addressing this.

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In some situations, a student will come to interdisciplinary study of this form having already undertaken some scientific training. Outside the European setting, not least in the United States, degree programmes or trajectories through programmes will often offer far more by way of combining elements spanning the natural science and the arts and humanities. In contrast, in my own UK setting, one really only encounters such breadth within undergraduate study when physicians or veterinary medics in training intercalate a year of theological studies within their longer degree, which – although possible – is rare. More frequently, in the UK at least, a student in a faculty of religion or theology with prior scientific expertise will have studied an entire previous degree in such a field, not infrequently even to doctoral level. In my own University, that would predominantly be because church-sponsorship for ordination training has opened the possibility of theological studies. Even so, only a considerable minority of students have prior scientific education of any form, even – as another weakness of UK education – at A-Level (typically studied in the two years before university).

One challenge for the teacher working at undergraduate level then, although one that can be substantially overcome, is to facilitate familiarity with science. Familiarity with theology can also be a challenge, especially where a course is focused – following the trend that I commend here – on how some particular science bears upon *some particular topic* in theology. Indeed, the more specific the former, the more specific the latter often needs to be.¹⁰ Teaching carried out at the level of

¹⁰ Carmody Grey's 'fond concern' addressed to Science-Engaged Theology, expressing apprehensions raised 'appreciatively', addresses the need to attend to theology in its historical particularity: 'If we cannot ask about the relationship between religion and science except for particular people in a specific time and a place, with reference to particular concerns, then the relativisation of the terms by their histories must be a defining aspect of the way the conversation is conducted' ('A Theologian's Perspective on Science-Engaged Theology', *Modern Theology* 37, no. 2 (April 2021): 491, doi:10.1111/moth.12695).

methodological discussion might leave theology or religion generalised and under-defined; discussion of some specific topic in science in relation to some specific topic in theology requires knowledge of this specific area of theology, which the science is thought to impact: in my sphere, perhaps some aspect of the doctrine of creation or the Incarnation, or some aspect of theological understandings of sin or human nature. Not infrequently, given the flexibility that students have in choosing courses, I find them coming to study a course in theology and natural science who have taken few previous theological courses, sometimes even none. Again, this challenge can be met. In such situations it is useful to have preparatory reading to fill in the theological background, perhaps starting a pre-university level, to offer an orientation, before moving into more detailed discussions.

At postgraduate level, a parallel situation is common, with a scientist wishing to jump directly into work between theology and natural science without first putting down theological foundations. For my part, I would always encourage a prospective postgraduate student in this situation – with interests in theology and natural science, and scientific training already under her belt – to build expertise in theology and religion first, with at least a year of undergraduate study. The temptation to rely on expertise in science, and to pick up elements of theology or the study of religion as one goes along, is understandable, not least with the cost of an additional year of study in mind. Nonetheless, if the postgraduate work in question involves, after all, the theological consideration of science, and not vice versa, then a lack of theological bearings is likely substantially both to impact the quality of the research undertaken, and to render the student less employable in a theological setting later on, if that is what is in mind.

When it comes to putting scientific rather than theological expertise in place in through postgraduate teaching and supervision, I have found it possible for an arts student with a strong commitment to scientific learning to make sufficient, even substantial, progress during the three or four years (in the UK setting) of a PhD programme, even without an undergraduate degree in science. That said, some topics, especially in physics, will simply and uncomplicatedly require substantial prior study of mathematics to an advanced level, as preparation for academically responsible and rigorous research on that scientific topic in relation to theology or

religion. Postgraduate supervisors will all know the experience, often quite frequent, of receiving enquiries about postgraduate work on topics such as quantum mechanics or relativity from prospective students without any formal training in the area. My go-to response in these cases is to point out that if I am not qualified to supervise in those topics, since my grasp of mathematics stops short of tensor calculus for instance, then their capacity to research also clearly falls short in the absence of similar training.

Questions of employment, already mentioned in brief, should be in view not only right through a programme of postgraduate study, but responsibly even before they have begun. We do prospective students who have university teaching goals in mind no service if we fail to be clear with them about the paucity of openings that will undoubtably be available to them upon graduation. For all interest in theology or religion in relation to natural sciences runs high both in the academy and more widely, it remains something of a niche area when it comes to professional recruitment by universities and colleges. Such employment is not, of course, the only avenue a student might have in mind, nor the only useful way to put postgraduate studies in this area to work, but for a sizeable number of students it is. Prudentially, therefore, a student will do well to make sure to cultivate proficiency in some other, more ‘mainstream’, theological discipline over the course of doctoral studies, whether that be in systematic theology, history, philosophy of religion, the social scientific study of religion, or something else. In many settings, a faculty that is hiring will map out its own sense of composition and balance in terms of still quite traditional disciplinary distinctions. Only a faculty already large enough to have at least a couple of doctrine specialists on staff, for instance, or philosophers of religion, will be likely to set out to hire someone with a focus specifically in theology or religion and science. That immediately limits the number of openings in that the field, not least with some faculties currently contracting in size. A student seeking such a position will therefore be much more likely to be able to land one if she can plausibly present herself in relation to some larger discipline – for instance, as a doctrine specialist, who has expertise in theology and science, or as an anthropologist, who has expertise in the perception of science in religious communities – rather than as simply a specialist in theology and science. Moreover, even in the case of a faculty that is in the fortunate position of being able to hire

someone with a focus specifically in theology and science, the ability for an applicant to contribute to another discipline will almost certainly help when it comes to standing out in a crowded job market. As always in a competitive situation, the ability to illustrate such capacities in concrete ways will make all the difference, for instance in terms of courses taught or papers published. For a postgraduate student researching in an interdisciplinary field such as theology or religion and natural sciences, a frank conversation with a supervisor about career aims is much to be advised right from the start of a programme of study, followed by ongoing conversations about steps that the student can take to gain demonstrable experience that will aid recruitment in relation to some larger sub-discipline of theology.

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Turning back to discussions of Science-Engaged Theology paradigm, we see – notably, and rather appropriately for an approach that wishes to stress discussions of particularity, and to shake up an area of interdisciplinary study – that presentations of the idea have been marked, from the start, by a breadth of approaches, and by an openness to criticism.¹¹ Two worries, in particular, might be singled out. One is that the particular science in question may not eventually be making a particularly significant difference to the theological outcome: as would be the case, for instance, if the science were ultimately only to furnish a useful image or metaphor for theological use, or if the outcome were simply be to show that some aspect of theology is consonant with some matter of science. The other is that attempts to bracket methodology and attend simply to ‘empirical findings’ risk a naïve lack of attention to ways in which science does not yield neutral ‘findings’ – ‘science is not *merely* empirical’ – but rather interpretations based on certain presuppositions, some of which, indeed, maybe highly charged from a theological perspective.¹²

¹¹ Breadth of approach is on display in the edition of *Modern Theology* devoted to the approach (vol. 37, no. 2), and openness to debate and criticism in the inclusion of responses in that edition, by responses by turns both appreciative and concerned: Peter Harrison, ‘A Historian’s Perspective on Science-Engaged Theology’, *Modern Theology* 37, no. 2 (April 2021): 476–82, doi:10.1111/moth.12693; Jonathan Jong, ‘A Scientist’s Perspective on Science-Engaged Theology’, *Modern Theology* 37, no. 2 (April 2021): 483–88, doi:10.1111/moth.12694; Grey, ‘Theologian’s Perspective’.

¹² Grey, ‘Theologian’s Perspective’, 493, with parallel comments by Harrison in ‘Historian’s Perspective’, 481–82; Jong, ‘Scientist’s Perspective’.

Either of those concerns can usefully be reflected in consideration of how to teach in theology and natural sciences. Turning to the first of these, the question of quite how, and to what degree, science has bearing on theology in any particular case will be an important matter for attention, particularly if we can open the way to seeing that the answer will be different from one case to another. On the second point, attention to methodology may turn out not to be quite as dispensable as the Science-Engaged Theology advocates suggest, although where that might usefully turn up may involve more by way of consideration of method in the natural sciences, rather than in 'theology and science'. Indeed, alongside increased attention to science in its particularity, teaching about philosophy of science will also be a useful expansion. While those researching and teaching in a 'theology and natural science' field today often have rather a lively interest in philosophy, that is more likely to be in 'philosophical theology' or 'philosophy of religion' than in philosophy of science, but they need not be inimical to one another, not least if the philosophically-interested theologian wants, in part, to approach science through philosophy of science in order to excavate presuppositions from a theological perspective. Here, familiarity with theology in a philosophical vein, and of theological history from that perspective, can be particularly useful.

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The availability of post-doctoral positions in theology or religion and natural sciences is reasonably buoyant at present (even if more permanent positions are harder to come by). Application numbers to postgraduate programmes in the area are high, and study in the area features as a much-appreciated element in many courses at an undergraduate level, and in wider public engagement with theology and religion. Nonetheless, those of us who are active in this area do not speak nearly enough about how our interdisciplinary work finds expression, beyond research and publication, in teaching and education. I have mentioned a session at the 2020 AAR/SBL Meeting and another, back in 2016, looked at pedagogy in science and religion. That is still, however, rather a small proportion of all sessions in the past decade. Rather more attention, in fact, is given to teaching about relations between theology and natural science in pre-university education, where we might think of

the research and writing of Berry Billingsley and Michael Reiss, for instance, or in the school visits and resource preparation of institutions such as the Faraday Institute in Cambridge. Perhaps *Zygon* itself could work to address that.